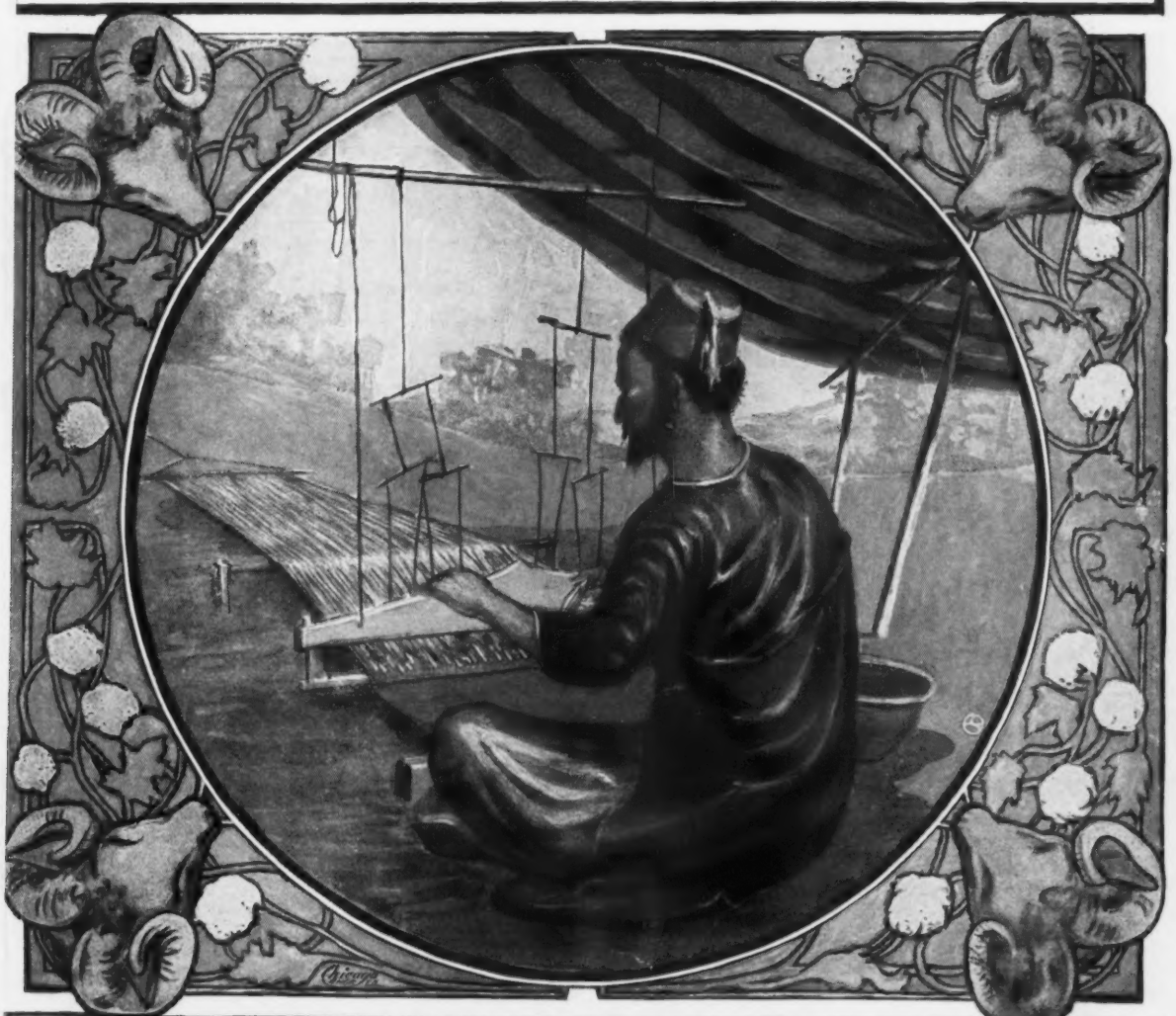
Number 1
Volume XLVII

APRIL, 1914

$2.00 per year
$3.00 with Directory

TEXTILE WORLD RECORD



LORD & NAGLE COMPANY ~ BOSTON · MASS.

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The TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

BUILDERS OF

Singeing, Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Machinery

FOR

TEXTILE FABRICS AND WARPS

Plans and Estimates for Complete Plants

50-FOOT AUTOMATIC CLIP TENTER

Tenters with Pin Links, Clamp and Patent Automatic Clips

Tenters with Patent Swing Motion

Tenters for Straight Running at High Speeds

Tenters for Mercerizing

Mercerizing Machinery for Cotton Goods and Warps

Mercerizing Machinery

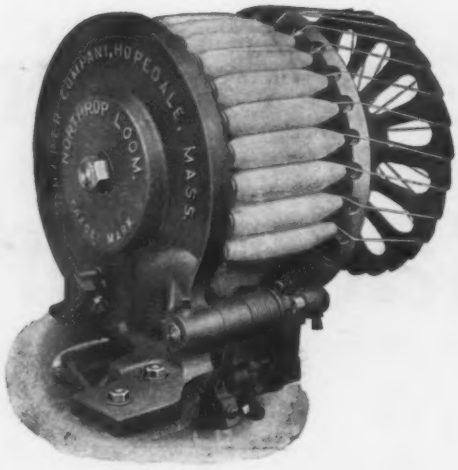
for

Piece Goods and Warps

H. W. Butterworth & Sons Co.

Philadelphia, Pa.

Providence Office, Room 417, Industrial Trust Building



NORTHROP LOOMS

TRADE MARK REGISTERED

EARN More Wages for the Weaver
Larger Dividends for the Mill

DRAPER COMPANY

HOPEDALE MASS.

DRAPER COMPANY

Northrop Loom Repairs

FIT

Northrop Looms

TRADE MARK REGISTERED

MADE BY

DRAPER COMPANY

Hopedale Mass.

J. D. CLOUDMAN Southern Agent
40 South Forsyth Street Atlanta Georgia

The Foster Exhibit

At the Textile Machinery Exhibition, Mechanics Building, Boston, Mass., April 27th to May 2nd.

WILL SHOW THE LATEST DESIGN
QUICK TRAVERSE MACHINE for

Cone Winding
Tube Winding
Cheese Winding
and
Cotton and Worsted
Doubling

Textile Manufacturers are cordially invited to inspect these machines in operation

Foster Machine Company

Westfield, Massachusetts

The Saco-Lowell Shops

Extend to all

A most cordial invitation to visit their exhibit at the

Textile Exhibition

Mechanics Hall,
Boston, Mass.

APRIL 27—MAY 2

Spaces 118 — 119 — 120

LEIGH & BUTLER

SUCCESSORS TO

EVAN ARTHUR LEIGH

232 Summer Street opposite the South Station), Boston, Mass.

SOLE AGENTS

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen & Worsted Machinery

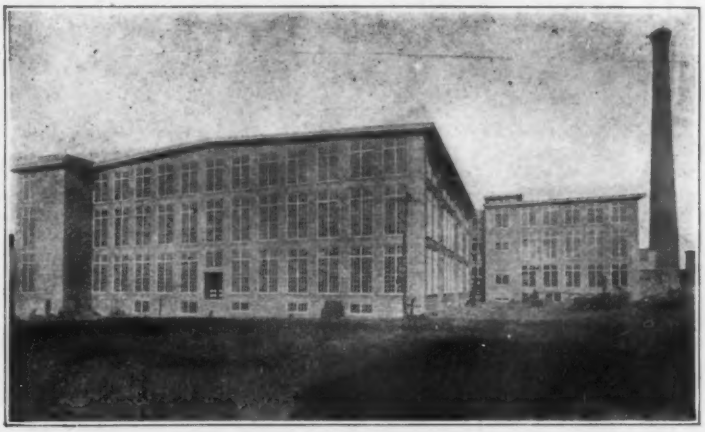
Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber—will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Wastes into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery

Archbutt-Deeley System for purifying and softening water.

JOSEPH SYKES BROS. Card Clothing for Cotton.
JAMES CRITCHLEY & SONS. Card Clothing for Woolen and Worsted.
WILSON BROS. BOBBIN CO. Bobbins, Shuttles, Etc.
THOMAS B. HAIGH. Double Loop Bands, Spinning Tape, Etc.
DRONSFIELD BROTHERS. Grinding Machinery and Emery Filleting.
HARDING'S Fallers, Pins and Circles.
The Best French and English Combing and Rubbing Aprons.
Card Flats reclothed and Lickers-in rewound.



60,000 Spindles—Sagamore Mfg. Co., Mill No. 3, Fall River, Mass.

"CARRIER EQUIPPED" MILLS

ARE GUARANTEED TO HAVE PROPER ATMOSPHERIC CONDITIONS

The CARRIER SYSTEM is an air conditioning system and not an air moistening system. It does not have to be turned off after a certain amount of moisture has been discharged into your working rooms.

The CARRIER SYSTEM controls both the temperature and humidity in each department of your plant, so that the best conditions for working are always maintained.

The CARRIER SYSTEM saves time and labor. Your raw material is easier to manipulate because it keeps its natural moisture. Your machines work to full capacity. Your operative is healthier, more content, and accomplishes more real work, and your product is better and brings a higher profit.

See Our Exhibit No. 47 at Textile Exhibit, Boston

Carrier Air Conditioning Co.

Of America

No. 39 Cortlandt Street, New York City

BUFFALO, 490 Broadway

BOSTON
Weld Building
176 Federal Street

CHICAGO
Ft. Dearborn Bldg.
Clark and Monroe Sts.

PHILADELPHIA
732 Real Estate Trust Bldg.

Parks' Piping Parables

In the graveyard of many a piping failure there is a sad lack of plans

Our Position as Engineers.

The reason why we are taking a more pronounced position as engineers—hanging out a new shingle as it were—is that we think in piping and allied things we have a service to offer that is economically justified.

Ask an honest mill engineer or architect to give you a research on such problems and he will tell you one of two things:—either he hasn't the organization to do it—or that he can't afford to do it at regular engineering terms.

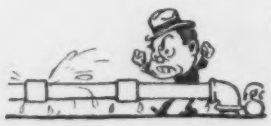
He will tell you that it demands more in point of study for the amount of money involved than most subjects that come to him.

In other words—piping and piping engineering is not over popular in the engineer's office—and being so is not apt to get a surplus of attention.

Seeing this, we resolved to announce more publicly our position.

We can afford to give the work more time and attention because we are contractors as well as engineers, and derive our profit from the contracting end of the business. We have taken this position after mature thought and after several talks with some of the larger engineers—friends of ours—for whom we have done work.

One of the big boys after hearing our story said something like this—"You are on the right track. Much as I dislike it, I make the prophecy that in a decade or less all big engineers will be contractors—and by the same token all big contractors will become engineers."



The process which has led up to our decision has been rather gradual.

Humidifying was a special subject—outside the field of the engineer. Hot water heating for factories was something new and a specialty and the engineers were content usually to be relieved of its detail. The same with sprinkler installations. Now comes a possible union of sprinkler work and hot water heating—another special subject.

And it's but a short step to ventilating, process piping, and power problems.

And so we make the announcement of being engineers on these closely allied subjects; those within the scope of our knowledge and experience.

We do this in the belief that the mill architect is a broad, high-minded man, who would welcome a better service to his client than he can afford to give.

Thots about Steam Leaks.

The most common leak about the steam plant is the kind you can see—the leaky valve stem, the joint that sizzles.

A quarter inch pipe isn't a very big thing, but if you have steam leaks that equal only what a quarter inch pipe will discharge, you pay a very big price for the privilege.

Supposing your plant operates at one hundred pounds pressure and you keep up steam night and day every day in the year as many plants do.

One steam leak the size of a quarter inch pipe, or enough of them to aggregate this, will cost you under these conditions the trifling and insignificant sum of about $1125.00 the year.

If you don't feel like repairing leaks for $1125.00 the year, we'll do it for that.

Now this is the cost on a leak you can see. There are others more insidious that cost more. If you are losing money in the form of "preventable leaks" we can be of service. This year sees a dawning of a little better business feeling—with economy as the manufacting watchword.

It is a part of our business to help you eliminate "heat unit" leaks that spell expense.

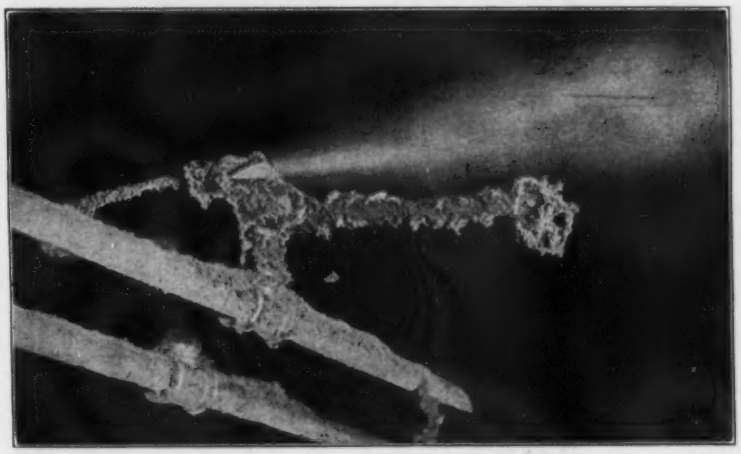
Our engineering department has a better knowledge of this sort of conservation than would be possible did they not make it their whole work.

As I am writing this, we have two big problems of this sort which our engineers are solving. After these are done, they can tackle a couple more.

The work is too important to hurry and we do not care to enter into it unless we can be given time to arrive at the real answer.
The one for you.

Steam Engineering is our specialty, and besides being contractors we are engineers. Piping and allied problems only.

PARKO



TURBO Humidifiers Work Any Old Place

THIS is a picture of a humidifier taken under very unusual conditions. It is successfully humidifying a room in which a very sticky, gummy flax was being manufactured.

A humidifier with drains, screens, cloths, mantles or fans would not have been possible in this room, because of the sticky nature of the flax.

Turbo Humidifiers will work anywhere—and in some places where it was thought impossible to install this helpful sort of apparatus.

For instance, we install Turbos directly on picker laps to the decided advantage of the manipulation of the cotton all the way through the mill.

Note the Turbo Cluster Tank for solving the humidification of small spaces at a minimum cost. Humidification of your factory is but one part of a larger problem—heating, ventilating, air cleaning power.

THE TURBO CLUSTER TANK

Designed to fill a need for humidification of not large spaces. Sold by mail and erected by you at small expense, so that direct charges of labor, carfares and such are eliminated. Send us your problems.

On this line of specialty work, we act as engineers as well as contractors. By working on the whole problem with you, or in consultation with your own engineer, we are able to offer you a service of special engineering knowledge that has been 42 years in the making.

The G. M. Parks Company

Fitchburg, - Massachusetts

Southern Office, 200 Commercial Bank Building, Charlotte, N. C.

J. S. COTHRAN - - Manager

Please write us further details of your engineering plan.

Name .....

Address .....

Mill ..... Position held .....

NOTE—If you have any particular problem in mind, give us details by letter. PARKS.

If you could take the roof off your factory

and let the sun shine into every corner, it would reduce your lighting bills, improve sanitary conditions and enable you to utilize space now useless for fine work.

You can get 19% to 36% increase in light without taking off your roof, by painting your ceilings and walls with

RICE'S MILL WHITE

The only oil paint (without varnish) giving a glossy tile-like finish

It will be like sunshine on your ceiling. Its glossy surface will not absorb light or collect dirt, germs and odors like a flat paint. It can be washed like tile.

Rice's Mill White will not scale and require frequent renewals like a cold-water paint. It will not "alligator" and crack under the jar of machinery like a varnish paint. It flows easily under a 4-in. brush; two coats equal three of lead and oil. *It stays white longer than any other gloss paint.*

The Original Mill White

Rice's Mill White made a trade name of the words "Mill White." It has no substitute. Nor e of its imitations has its elastic, permanent qualities. No other paint manufacturer can use the Rice process. Rice's Mill White for ten years has proved itself unequaled for illuminating power, sanitary qualities and low ultimate cost.

Write for Booklet and Sample Board

Ask for our booklet, "More Light." Write today.

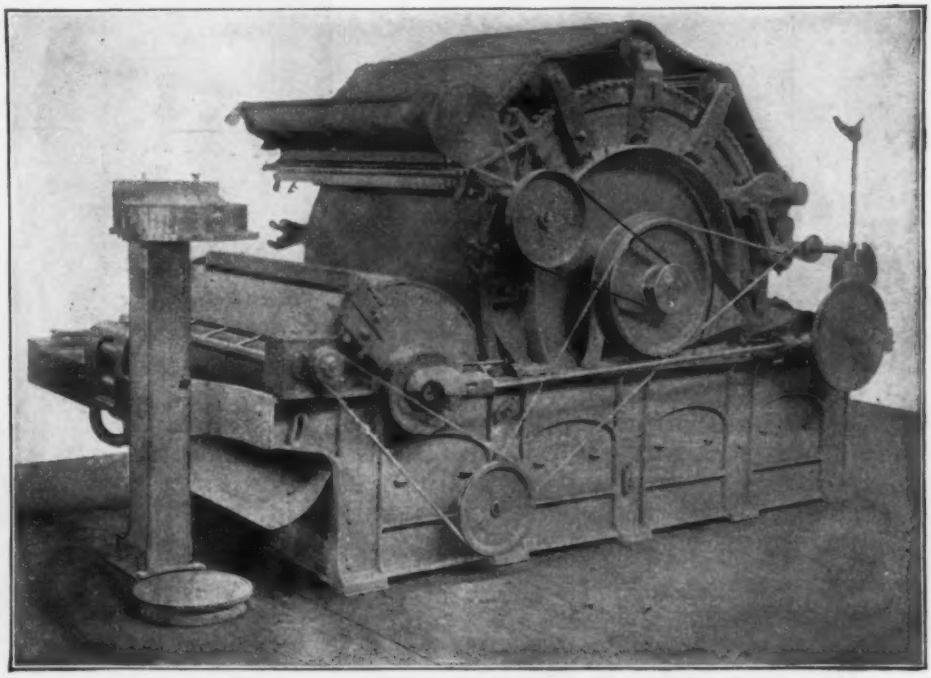
U. S. Gutta Percha Paint Company

20 Dudley St., Providence, R. I.

MASON MACHINE WORKS

Taunton, Mass. **Greenville, S. C.**

Builders of
Revolving Flat Cards, Drawing Frames,
Spinning Frames, Looms, Dobbies, Etc.



Superior Loom Cranks for Repairs

Cramer System
of
Air Conditioning

Cramer "High Duty" Air Conditioner

Cramer Automatic Regulator

FACTS

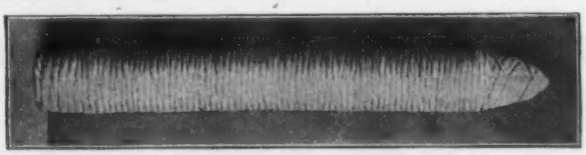
In several large mills equipped with humidifiers of other makes, we have entirely reorganized their system, installing our "High Duty" equipment with automatic humidity and temperature control and the average improvement during the succeeding twelve months test is:

A—Seconds reduced over 50%.
B—Production uniform day after day (No big jumps.)
C—Actual waste account halved.
D—Large saving in "invisible waste."

What Would Similar Results Be Worth To You?

STUART W. CRAMER

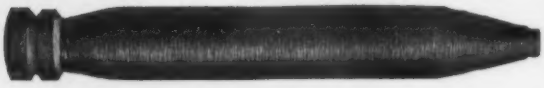
50 Church St. New York — **Charlotte, N. C.** — Tremont Bldg. Boston, Mass.



No. 2

No. 1 and No. 2—Cops to weave from inside seven-eighths to three inches diameter and up to seventeen inches long. Suitable for various kinds of coarse goods such as grass matting, cotton bagging, cocoa matting, all kinds of carpets, felts, chinchilla, linen, jute, flax, asbestos, hose and narrow fabrics such as wicks, belting, webbing, surcingles, halters, etc.

No. 3 and No. 4 Shuttle Bobbins from seven-eighths to two inches in diameter and any length up to twelve inches. Suitable for all kinds of duck, upholsteries, tapestries, asbestos, ratana or any kind of fancy yarns for automatic or other looms.



No. 1 No. 4 No. 3

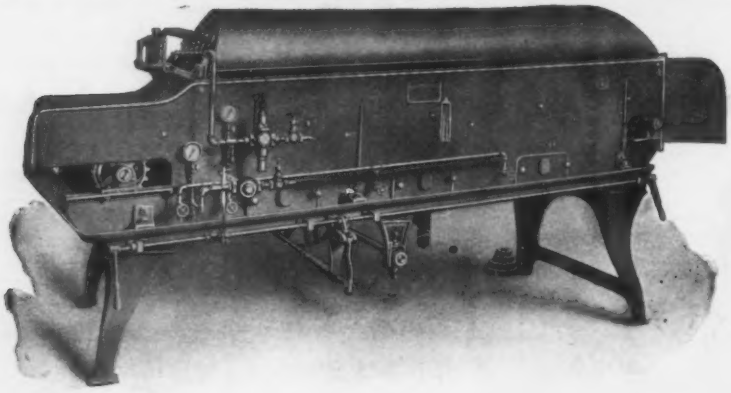
OSWALD LEVER CO., Inc.

Lehigh Avenue and Front Street, Philadelphia, Pa.

Builders of Textile Machinery WINDERS ESPECIALLY

The Yarn Conditioning Machine

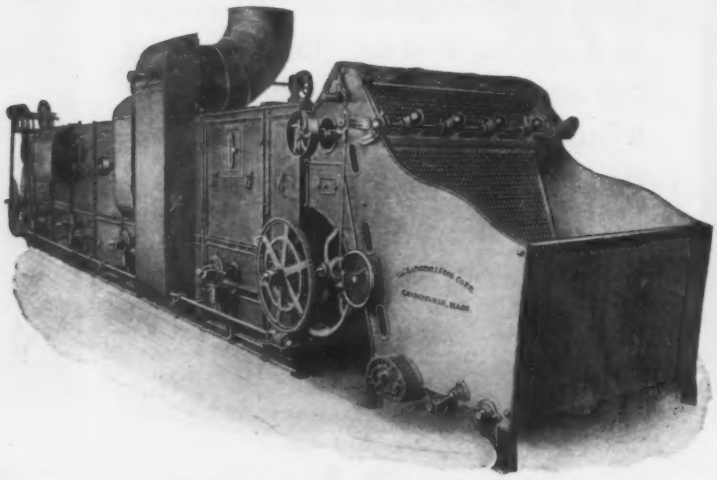
Sets the twist in your filling and overcomes kinky filling difficulties. It conditions without injuring the bobbins



The Sargent Drying Machines

Metal Construction
Asbestos Insulation

Scientifically designed for greatest economy in drying Cotton, Wool, Hair.



Wool Washers, Wool Dusters and Openers, Burr Pickers
Complete Carbonizing Plants
Automatic Feeds for Cotton and Wool

C. G. Sargent's Sons Corp., Graniteville, Mass.

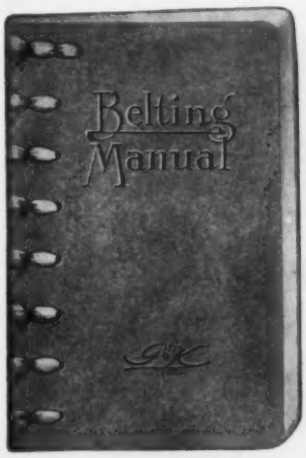
G&K 1851

Educational Talks on Leather Belting.

The "Care of Belting" Manual—Yours

To obtain the highest efficiency in power transmission, is the problem which confronts every manufacturer. For years leather belting has demonstrated its ability to stand more abuse and come out "alive" than any other means of power transmission. It is an undisputed fact that if leather belting is given a tithe of the attention which of necessity must be given to other forms of transmission, it will demonstrate beyond question its greater efficiency and economy.

To promote this efficiency and economy is the fundamental object of



Actual size 3¼"x5¾"—90 pages

The "Belting Manual"

With its 90 pages of Practical Belting Information

It tells how to install belting, how to care for belting, how to repair laps, how to make belts endless, how to apply dressings, how to lace belts, how to clean belts, how to remedy some of the belt troubles, how to find width and length of belts.

The various mechanical rules are unusually complete, and compiled for use in solving the daily problems of power plant practice. In short, the "Belting Manual" is an authentic text book on the transmission of power—it is a veritable fund of information for every belting user.

T. W. R. 4-14

A copy will be sent you gratis upon request

Clip the Coupon—today →

The Graton & Knight Mfg. Co., Worcester, Mass.

Gentlemen—
Send at once the "Belting Manual."

Name .....

Address .....

.....

Position .....

Company .....

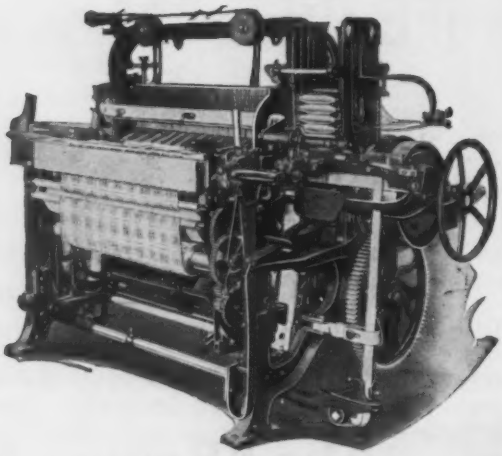
.....

The Graton & Knight Mfg. Co.

OAK LEATHER TANNERS and BELT MAKERS

WORCESTER, MASS., U. S. A.

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

WORCESTER, MASS.

Providence, R. I. **Philadelphia, Pa.**

Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

ECONOMY AND SAFETY

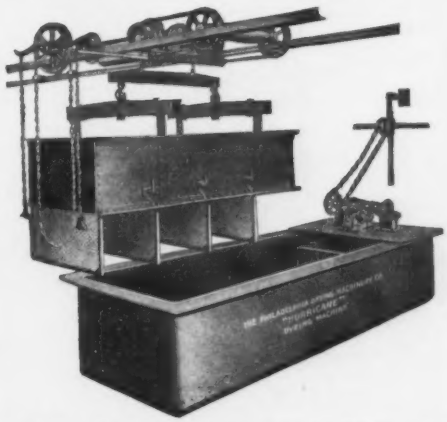
YOU GET BOTH WITH

"Hurricane" Machinery

FOR

HOSIERY
SKEIN
YARN
SLUBBING
etc.

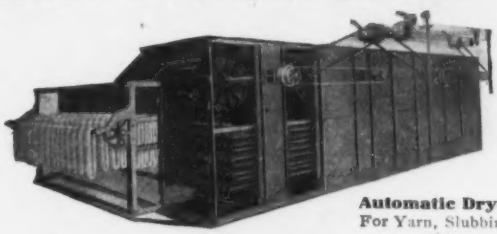
The best and mosteconomical Dyeing Machines



BETTER DYEING at LESS EXPENSE

Give us an opportunity to prove our claims

"Hurricane" Circulating Dyeing Machines are built in various sizes and types



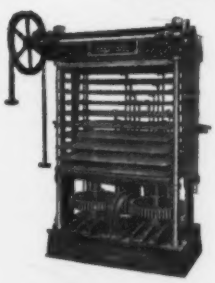
Automatic Dryer
For Yarn, Slubbing, etc.

Complete Equipments for

Dyeing
Scouring
Bleaching
Carbonizing

FIRE-PROOF DRYERS

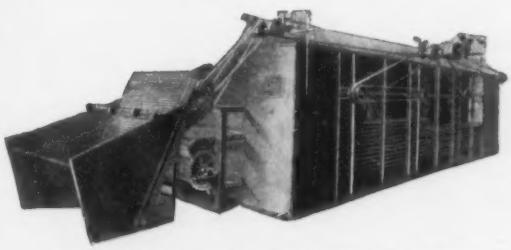
STEEL CONSTRUCTION
INSULATED WITH ASBESTOS



Power-Screw and Hydraulic
PRESSES

Fans

Motor and Belt Driven



AUTOMATIC STOCK DRYER
(With Sectional Continuous Conveyor)
For Cotton, Wool, Hair, Rags, etc.

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works: 6721 Germantown Ave., Phila., Pa. **Boston Office: 53 State Street**

You Should Know

That The **National Association of Cotton Manufacturers** will hold their convention and meeting at Boston during Textile week, April 27 to May 2.

That In compliance with the wishes of a great number of the members of the **American Cotton Manufacturers Association,** the officers have changed their annual meeting to April 27 and 28 at the Waldorf, in New York, in order that their members may also attend the Textile Exhibition in Boston during the week.

That The **Southern Textile Association** will attend, and Tuesday, April 28, will be known as Southern Textile day.

That The **National Association of Woolen and Worsted Overseers** will hold a special meeting on Saturday, May 2.

That The **Fourth National Textile Exhibition** will be the largest and most complete exhibition of **Cotton, Woolen and Knit Goods Machinery** ever gathered together.

That There are only a few spaces available in Departments "C" and "F." If you are not represented at this Exhibition, **wire, now,** for information.

Address all communications to

Chester I. Campbell, Sec'y and Gen'l Manager
Executive Offices, 5 Park Sq., Boston, Mass.

Textile Week BOSTON April 27--May 2

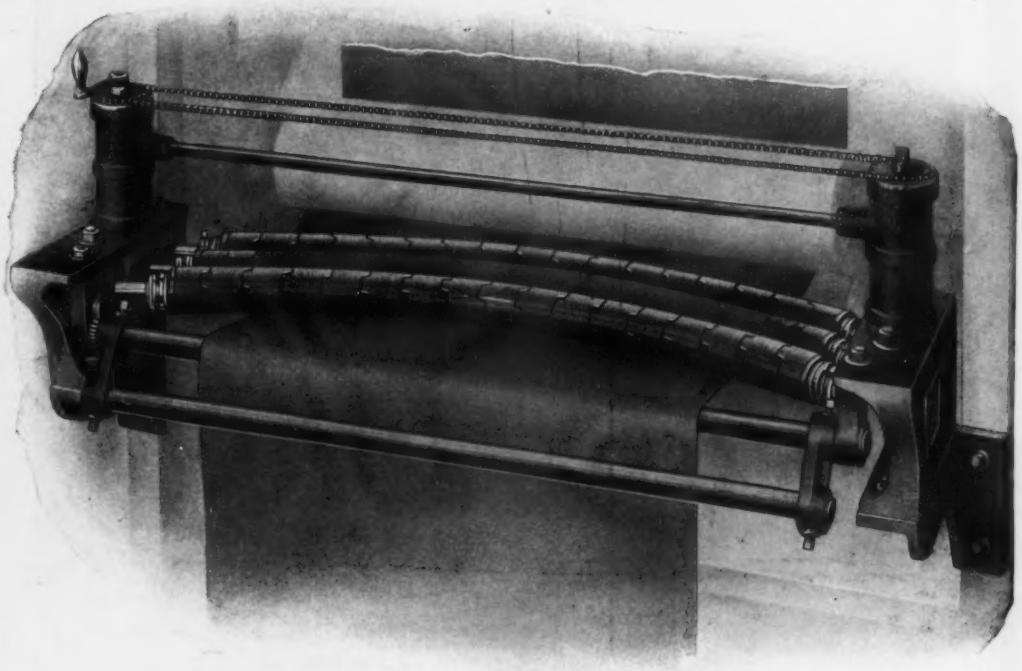
THOMAS LEYLAND & COMPANY

F. T. Walsh, Manager

60 India Street, Boston, Mass. WORKS AT READVILLE, MASS.

Sole Manufacturers of THE WILLIAM MYCOCK

Improved Regulating Cloth Expander



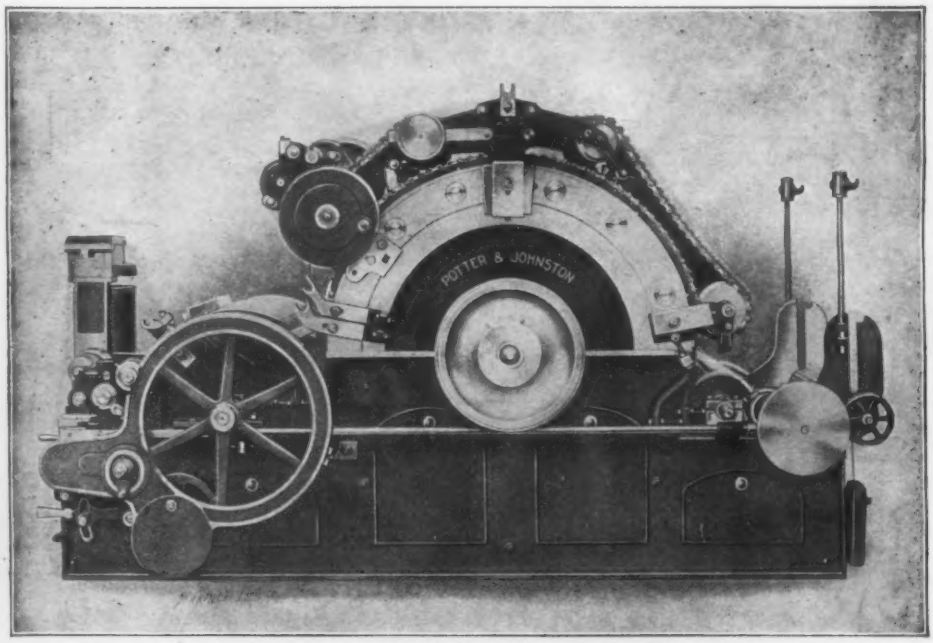
Expander attached to Calendar showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, etc.

See our Exhibit at the Boston Textile Show, April 27—May 2, Space 43

Cotton Machinery by Specialists



Notice Small Amount of Belting
Required on This Card

Potter & Johnston Machine Co.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Cotton Machinery by Specialists

Pickers and Revolving Flat Cards

POTTER & JOHNSTON MACHINE CO.

Pawtucket, R. I.

Drawing and Roving Machinery

WOONSOCKET MACHINE & PRESS CO.

Woonsocket, R. I.

Ring Spinning and Twisting Frames

FALES & JENKS MACHINE CO.

Pawtucket, R. I.

Spoolers, Winders and Reels

EASTON & BURNHAM MACHINE CO.

Pawtucket, R. I.

Warpers and Beamers

T. C. ENTWISTLE CO.

Lowell, Mass.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

The Hunter

NO. 10
FULLING
MILL

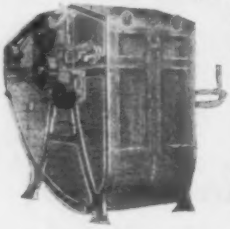
DRIVING SIDE

GEAR DRIVE

CLOTH WASHERS

PEICE DYE
KETTLES

SOAPING
MACHINES



BELT DRIVE

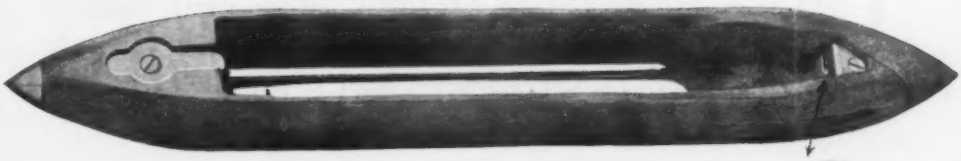
ROPE DRIVE

JAMES HUNTER MACHINE CO.

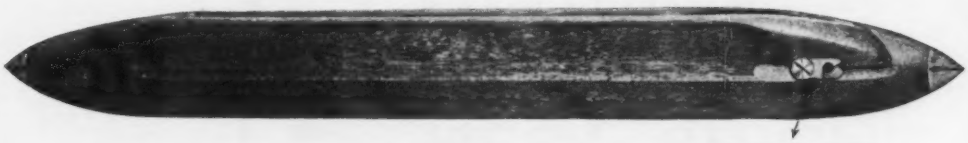
NORTH ADAMS, MASS., U. S. A.

New Hand-Threading Shuttle

The Caron Patent Hand Threader



This "THROAT PLATE" (slightly enlarged) is so designed that the Yarn *cannot "Balloon"*



This "SIDE EYE" (slightly enlarged), made in two parts, *prevents unthreading.*

The Simplest and Most Quickly Threaded Shuttle Made

It can be filled with the finest silk or the coarsest filling—will neither *unthread* nor *"balloon"*—lint that accumulates is easily removed—felt can be inserted for tension purposes—and being a hand-threading shuttle, it is sanitary.

This shuttle is entirely different from all others. It has been severely tested for a year by large mills and is the most effective hand threader on the market.

Trial orders solicited—Satisfaction guaranteed

Paper Cop Tubes Cones and Shells

Send your samples and we will quote prices on any lot desired

Shuttles and Shuttle Irons

For All Textile Purposes

American Textile Specialty Machinery Co.

670 Eddy Street - Providence, R. I.

13th St. and Boulevard, Long Island City

Starch

THE particular case of your own mill needs careful study to determine what starch is best suited to *your* SIZING and FINISHING problems.

We have reduced the manufacture of starches for textile work to a science by years of factory investigation and laboratory research. We are ready to take up the special case of your mill and point out to you what starches are most adaptable and reliable for your purposes.

Six years of careful investigation of conditions in the cotton mills of the country has taught us the needs of the trade.

Six years' research in the best equipped Starch Laboratory in America has put us in touch with starch chemistry.

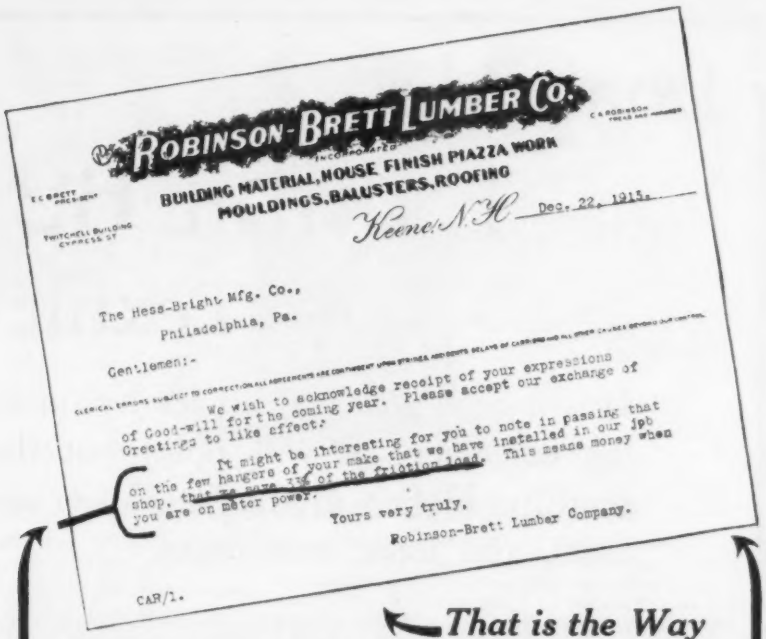
Six years of manufacturing, with cotton mill problems in mind, has produced our special Brands of Textile Starches.

We want to send our special starch expert to your mill. We want him to go into the matter of sizing with your boss of slashing—check up your sizing processes—find out whether you are now using the starches that will insure you the most efficient and economical results.

This special starch expert service is absolutely free—send us a sample of the starches you are using. We will give you an exact analysis of them and send our practical man to study your needs. Write a letter now to our Mill Starch Department.

Corn Products Refining Company
NEW YORK

Starch



ROBINSON-BRETT LUMBER CO.
INCORPORATED
BUILDING MATERIAL, HOUSE FINISH PIAZZA WORK
MOULDINGS, BALUSTERS, ROOFING
Keene, N.H. Dec. 22, 1913.

The Hess-Bright Mfg. Co.,
Philadelphia, Pa.

Gentlemen:-

We wish to acknowledge receipt of your expressions of Good-will for the coming year. Please accept our exchange of Greetings to like effect.

It might be interesting for you to note in passing that on the few hangers of your make that we have installed in our job shop, that we save 15% of the friction load. This means money when you are on meter power.

Yours very truly,
Robinson-Brett Lumber Company.

CAR/l.

That is the Way

THE NEW **HESS-BRIGHT**
BALL BEARING HANGER
Saves Money!

We could frame no stronger advertisement for our hanger than this voluntary letter of the Robinson-Brett Co.

Find out what they can do for YOU. A trial on one line may convince you.

Note the improvements in the new Hess-Bright. (1) Adjusting screws are arranged at an angle, and no amount of tightening set screws can distort the box body or cramp the bearing.

(2) The bearing is permitted to swivel inside holding frame, and is therefore adjustable in every direction.

WRITE Our Hanger Department **NOW**

The Hess-Bright Mfg. Co.
Front St. and Erie Ave. Philadelphia, Pa.

Don't Miss

Exhibit 62

AT THE BOSTON Textile Show

It will be a powerful object lesson in weaving efficiency; it will point out the short route to higher production, lower operative costs, and loom economies.

You will meet men at that convention who several years ago were skeptical about the Universal Iron End frame and the flat steel heddle with its cornerless eye—men who have since equipped with that same frame and heddle and have watched equipment costs shrink.

You will meet men who have since seen their output raised in quality, their labor costs reduced and loom troubles gradually disappear; and these men doubted the Universal Frame and the steel heddle—at first.

At EXHIBIT 62 you will learn who, among the exhibitors, have the machines shown in their exhibits, equipped with Steel Heddle Products.

At EXHIBIT 62 you can learn how Steel Heddle products can be adapted to your work—what it will cost to install them either in whole or in part or experimentally.

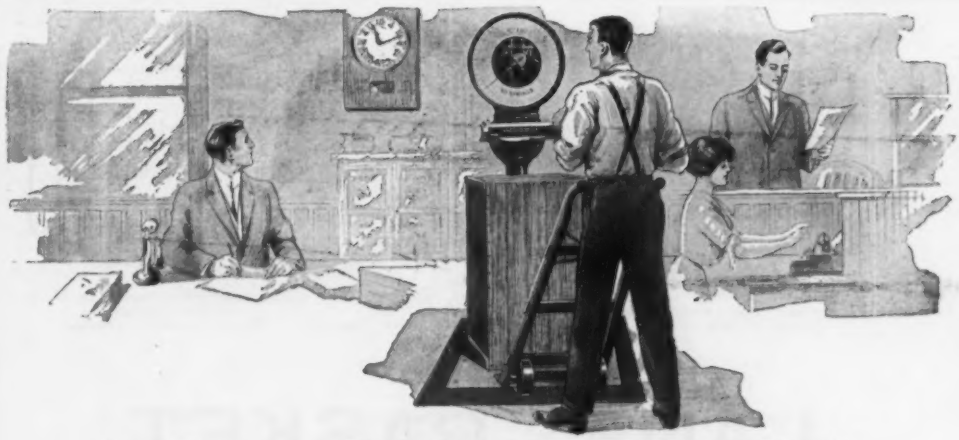
Bring your weaving troubles—your weaving problems—your complaints to EXHIBIT 62 and let us help you take the twists out of your work—to straighten out your troubles. There's no obligation. This is part of Steel Heddle Service.

Make EXHIBIT 62 your headquarters—at least come have a chat with us. We are there for the good of the textile industry—to help you cut down your costs—to settle your labor problem and to raise the general efficiency of your weaving equipment.

Steel Heddle Manufacturing Co.

2100-2118 Allegheny Ave., Philadelphia, Pa.

Providence Office - - - - - 76 Dorrance Street



As Easy to Read as the Office Clock

A glance at the dial and you have the weight—speedily and accurately. This is the basic reason why the Toledo eliminates the wastes of time and labor of the old-fashioned beam scale. A mere sight transaction takes the place of the fumbling with weights and counterpoises, and the mental calculations necessary with the old method. There is no waste of time nor chance for inaccuracy. The weighing problem has been reduced to placing the load on the scale and reading the dial—the speed of weighing is limited only by the rapidity with which loads are placed on scale and removed. **Result**—a 20% reduction in weighing costs that has been proved in practice by many users of Toledos.

Automatic **The Toledo Scale** Springless

THE Toledo is an ideal scale for factory use. There are no springs to be affected by climatic changes. A ball-bearing platform on the dormant type relieves pivots of all shocks due to heavy loads. Throughout, the workmanship and material are of the very best. Portable or dormant Toledos from 250 to 1500 lbs.

Toledo Heavy Capacity Portable Scale

A DISTINCTIVE FEATURE
THE PORTABLE SCALE NEEDS NO LEVELING

The floating compensating pendulums make it unnecessary for the user to balance or level up scale each time it is moved. This saves time when using scale on floors that are not level and insures absolute accuracy. This feature is invaluable to the factory user of a portable scale and is found in no other scale in the world.

Backed by Real Service

Every Toledo Scale is backed by an organization with more than twelve years' experience in scale building. Over 125,000 Toledo Scales are in use by merchants and manufacturers throughout the United States and Foreign Countries. Service Stations in charge of trained mechanics stand prepared to give the Toledo user any needed attention at any time.

Write us today. Your inquiry will receive prompt attention and we will forward interesting literature.

TOLEDO SCALE COMPANY

DEPARTMENT C - - - TOLEDO, OHIO

FIG. 20.
Extra heavy, best quality cotton duck. Leather binding.

THERE IS A

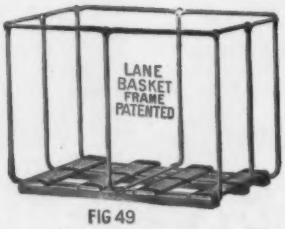


FIG 49
Lane indestructible frame with renewable hard wood shoes. Made also with iron shoes.

LANE BASKET

OR

TRUCK

FOR YOUR ESPECIAL USE

WRITE FOR CATALOG

MANUFACTURED BY

FIG. 22.
Round taper style. For bobbins, waste, etc.

W. T. LANE & BRO.

POUGHKEEPSIE

N. Y.

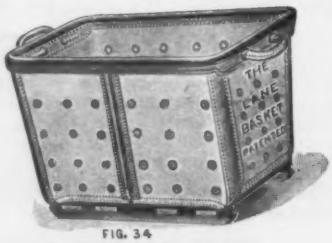
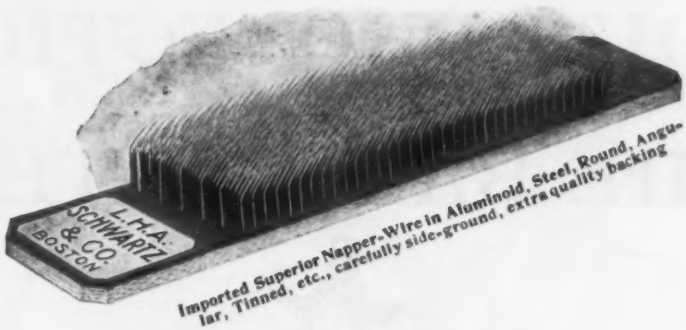
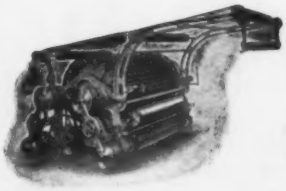


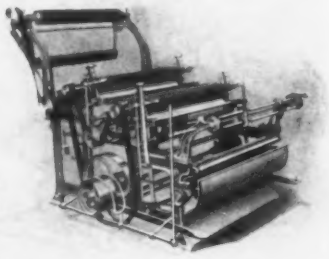
FIG. 34
The Lane Basket is a long-lived, quick steamer.



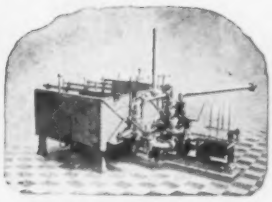
Imported Superior Napper-Wire in Aluminold, Steel, Round, Angular, Tinned, etc., carefully side-ground, extra quality backing



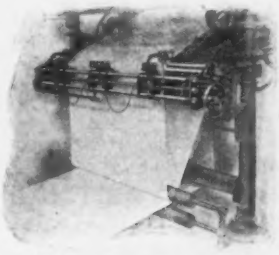
Monforts' Napper



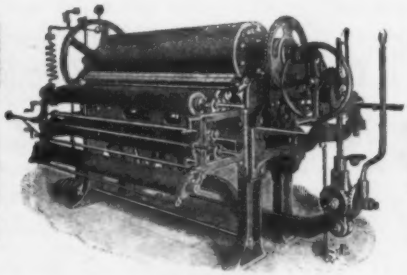
Monforts' Special Shear for Napped Cloth



Cross-Spool Dyeing Machine



Automatic Electrical Feeder for Tentering, Drying Machines, Calenders, Etc.



Rotary Press

Klug Dry Decating Machine

New Monforts' Emery Cloth Grinding Machine, Paul Klug Dry and Wet Decating, Rotary Presses, Fulling Machines, Tentering and Drying Machines with Automatic Electric Feeder, Cross Spool and Beam Dyeing. The new process Niederlahnstein Automatic Hank Mercerizing, Card and Napper Clothing, etc.

L. H. A. SCHWARTZ & CO.

40 Central Street, Boston, Mass.

Dealers in China, India, Egyptian and American Cottons

YOUR PROTECTION
IS
THE BAY STATER

Reg. U.S. Pat. Off.

BAY STATE

When ordering a Coating for the protection or decoration of Concrete, Cement, Brick and Stucco, purchase

BAY STATE

and see that every container bears our trade mark

We are the only manufacturers of Bay State Brick and Cement Coating. Bear in mind that we made and introduced the first successful Brick and Cement Coating placed on the market.

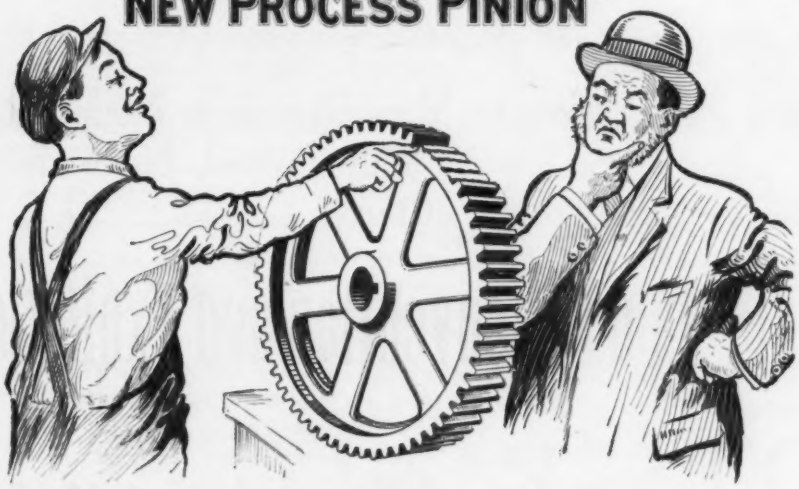
SEND FOR BOOKLET 12

WADSWORTH, HOWLAND & CO. INC.

PAINT AND VARNISH MAKERS AND
LEAD CORRODERS

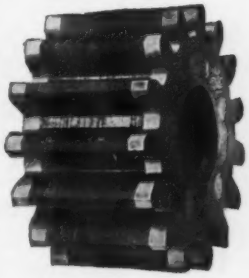
82-84 WASHINGTON ST., BOSTON, MASS.

"YOU THOUGHT WE DIDN'T NEED A NEW PROCESS PINION"



SAME OLD STORY—gears subjected to quick imposition, variation and reversals of load—shocks not heavy but frequent—hard unyielding metal-to-metal contacts crystallized the gear teeth—and something had to go. Almost always, too, the teeth on the larger, more expensive gear are the ones that strip.

Trouble of this kind stops completely where a **New Process Pinion** replaces the metal one, and the relief from the clatter and racket is complete. Although having ample strength to replace metal, the teeth of a **New Process Pinion** do their work quietly, and have just enough "give" to produce perfect contact clear across the tooth face. Load irregularities and vibration that would wreck metal-to-metal gear drive in no time are entirely compensated for and safe with the metal-to-rawhide contact from a **New Process Pinion.**



Try one New Process Pinion on some motor, geared pump, air compressor, hoist, punch, shear, press, planer, lathe, shaper, saw, etc., in your shop where the noise, vibration and loading are bad.

You will soon appreciate the improved working conditions. Ask for book, "Noiseless Gear Driving."

NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

N.P.R.H. **NEW PROCESS GEAR CORPORATION** N.P.R.H.

SYRACUSE, N.Y.

Canadian Agents: Robert Gardner & Son, Ltd., Montreal

87

WAIT A MINUTE!

If you are a Knitting Manufacturer or interested in this industry, you are not only invited, but earnestly requested to be present at the

Tenth Annual Convention and Exhibition

OF THE

National Association of Hosiery and Underwear Manufacturers

First Regiment Armory
Broad and Callowhill Streets

Philadelphia, Pa., May 11th to 15th, 1914

Space in Exhibition has all been sold and it's therefore going to be a big show, and intensely interesting and profitable to all who attend.

Ditto for the Convention Sessions.

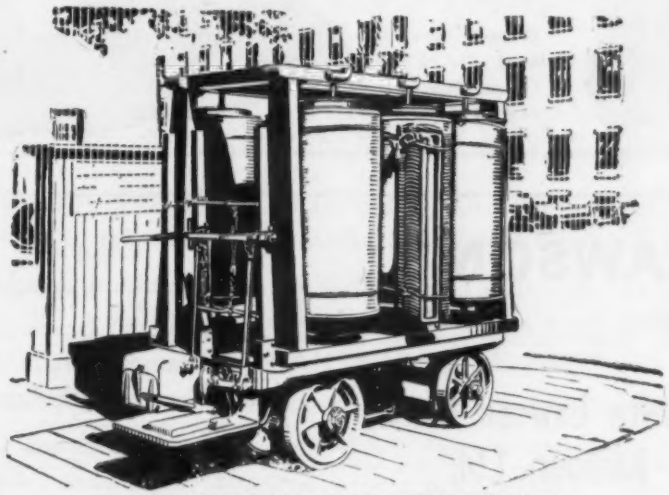
This is the
TENTH ANNUAL REUNION
of
"THE HAPPY FAMILY"

Cutting Down Production Costs With G. V. Electric Freight Trucks

STUDY the illustration below and your mind will instantly leap to the possibilities of this little Electric in your own business.

THIS particular truck is used by a well-known textile mill. It is loaded with six beams, weighing about 1900 lbs. Formerly it took from 2 to 3 men 55 minutes to move 6 full beams from one mill to another and bring back six empties. Two men and the G. V. freight truck **make the round trip in 11 minutes!**

DYE tubs, bolts of cloth and miscellaneous freight moved from mill to mill or from floor to floor in one-quarter the time and with half the labor. Think of it!



(A G. V. ELECTRIC 2000 LB. FREIGHT TRUCK)

AND, outside the mill the economies are fully as startling. Think of moving coal in 1600 lb. loads over a planked road from car to furnace and automatically dumped. How about bales of cotton or wool or other raw material? The truck will go **inside** the box car, inside the elevator, up inclines of 25%, around bad corners, through narrow aisles—almost anywhere a hand truck can go, and at an efficiency 15 times as great. Yet a laborer at $1.50 or $2 per day can run it and the current cost can't possibly exceed 1 cent per mile unless you pay a very high rate or waste it. ☞ ***Catalogue T-89 on request.***

General Vehicle Company, Inc.

General Office and Factory: Long Island City, N. Y.

New York ***Chicago*** ***Boston*** ***Philadelphia***

SMITH, DRUM & CO.

"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing, Singeing and Finishing

HOSIERY

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

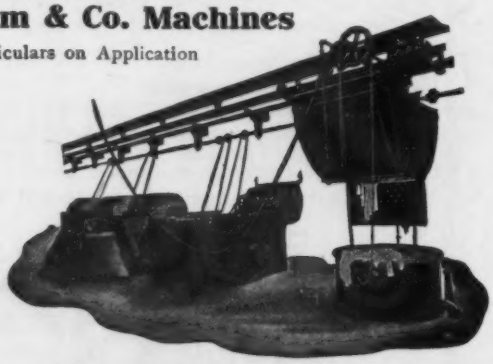
SAVE LABOR and **DYE STUFF** and do **BETTER WORK**
in your dye house by using

Smith, Drum & Co. Machines

Full Particulars on Application

Coral and
Cumberland Streets,
Philadelphia,
Pa.

Southern Agent
H. G. MAYER
Realty Bldg.,
CHARLOTTE, N. C.



LAWSON'S

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery
For the Manufacture of
Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machines.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

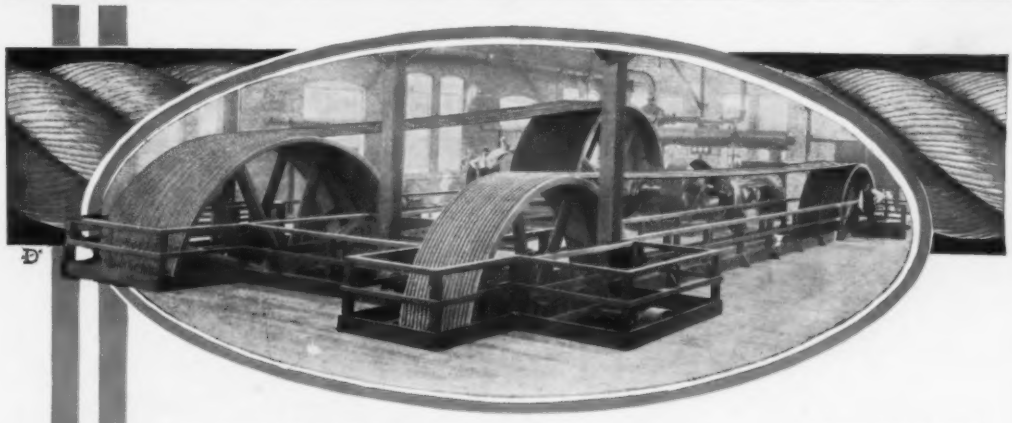
Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.



THE POWER YOU PRODUCE
***COSTS* MONEY**

The following is an extract from an article by Richard Howarth in Practical Engineer of Nov. 1, 1913. Writing on the installation cost of a 1000 h. p. drive and comparing the belt and rope systems, he says:

"Cost of belt and pulley is $5114.00 cost of rope and pulley $4200.00----a total saving of about $914.00 by the rope system."

That's 18 per cent saved in installation----on your investment to PRODUCE power.

The Power You Produce *Costs* Money

The Power You Apply *Makes* Money

THE POWER YOU APPLY
***MAKES* MONEY**

Quoting from Mr. Howarth's article again:

"One of the greatest drawbacks of belts is the amount of slip caused by the air cushion between the belt and the pulley face which is a serious factor to contend with."

That's power going to waste---power that should MAKE money for you.

Then your operating profits are largely dependent upon the efficiency of both the method and the agency you use in putting power to work.

To bring these profits up to the maximum the Method should be—Rope Driving. The Agency *must* be

AMERICAN
TRANSMISSION ROPE

The rope that will apply all the available power, apply it most effectively and requires the least attention, repair or renewal.

Because AMERICAN TRANSMISSION ROPE is self-lubricating and always keeps soft and pliable in service—requires no external dressing. Because all internal fibre friction and wear are eliminated by this lubricant in which the core and inner yarns are laid. Because it is made of pure, selected Manila—through and through—every fibre of it faithful to perform the utmost that fibre can do.

WRITE FOR THIS FREE BOOK

Let us send you our "Blue Book of Rope Transmission." It shows the superiority of AMERICAN TRANSMISSION ROPE in other essential features. It tells you how to splice a rope; how to get best results from a new one and many other helpful suggestions of this nature. All requests on business letterhead will bring it promptly.

We Ship Without delay—on Telegram if Necessary—
from either point of manufacture

American Manufacturing Co.
Dept. T
Brooklyn, N. Y. City

QUALITY QUALITY

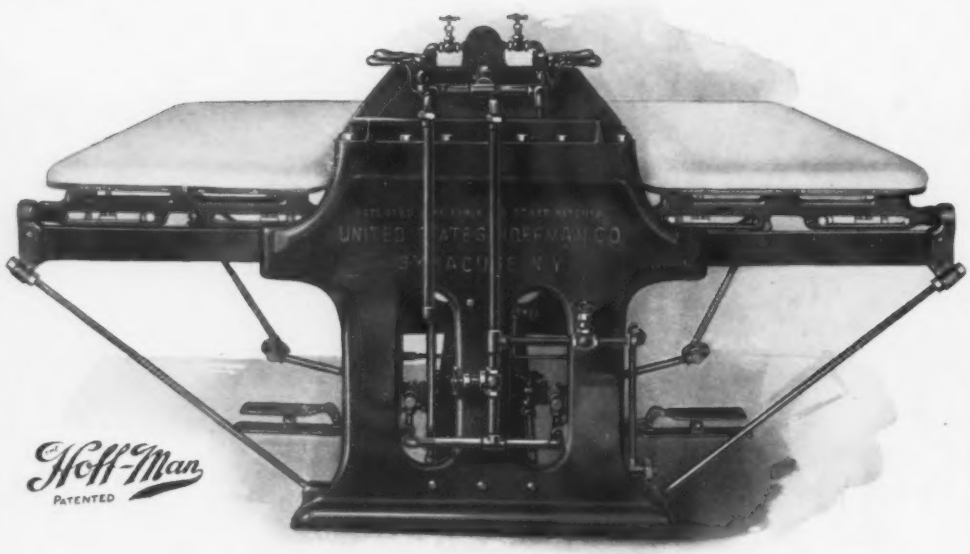
St. Louis Cordage Mills
Dept. T
St. Louis, Missouri

SEE-IT-AT-THE HOSIERY AND UNDERWEAR CONVENTION-PHILADELPHIA

BRING OR SEND SOME-SAMPLES TO-BE-PRESSED

WATCH-THE-OPERATION-WHILE-THERE

DON'T-FAIL-TO-DO-THIS YOU'LL-PROFIT BY-DOING-SO



"Hoff-man" "FFF" Underwear Press

DIRECT-APPLICATION-of-LIVE-DRY-STEAM

CAN-BE-INSTALLED-ANYWHERE-IN THE-MILL. AN-INDEPENDENT-UNIT

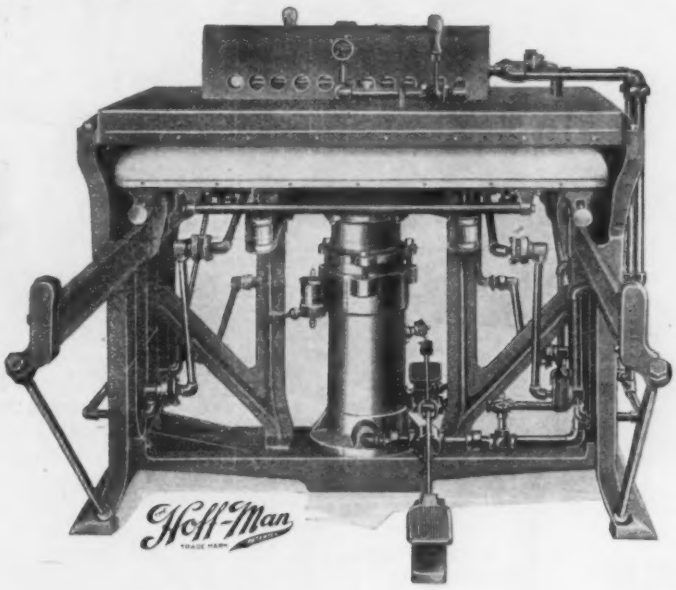
United States Hoffman Co.

Syracuse, N.Y.

Important Announcement

A New Hosiery Press to be shown at the next Hosiery and Underwear Convention, Philadelphia

Send or Bring Samples to be Pressed



HOFFMAN L HOSIERY PRESS

Can be installed anywhere in the mill. An independent unit. The direct application of hot, dry steam produces a beautiful lustre.

United States Hoffman Co.

SYRACUSE, New York

REO MOTOR TRUCKS

A Reo Motor Truck working for you means not only a saving in hauling costs, but added efficiency in every part of your factory. Speed and sureness of service mean as much as per-ton cost of transporting goods.

With a Reo Truck "on the job," whether for hauling raw material or finished goods, you have the cheapest, safest and most dependable method of hauling goods yet devised. Instead of the care and uncertainty of horse-hauling, you can have the ease and certainty of Reo Trucks at a big saving to you.

In any line of industry where speed and low cost of hauling count, Reo Motor Trucks have won the enthusiastic endorsement of business men. If you want to cut costs in delivering your goods, "you can do it with a Reo."

Here are a few of the features that have given the Reo its position of leadership in the two-ton field:

Sectional radiator, of 24 separate, interchangeable units; motor, clutch and transmission cushioned on a sub-frame away from jars and road shocks; left side drive and center control; big armored front frame; demountable driver's cab; gas lights and Prest-O-Lite tank, and every other constructive refinement suggested by the best engineering practice.

While the price of 54 competing trucks averages $2701, the REO Two-Ton Truck sells for $1650, chassis only, with driver's cab; body extra. You can have any style body to suit your individual requirements.

Reo dealers everywhere ready to give Reo service.

Send for the REO TRUCK catalog, and let us give you some expert advice on the subject of hauling

$1650

Chassis with Driver's Cab. Body Extra.

Your choice of wheel base—130 inches or 146 inches

REO MOTOR TRUCK CO.

LANSING
MICHIGAN

Time-Keepers of Progress

S. K. F. BALL BEARINGS

and

THE TEXTILE EXHIBITION

Mechanics Building, Boston, April 27—May 2

Will record the progress made in the application of S. K. F. Ball Bearings to Textile Machinery, various textile machines in operation, typical installations.

This is an opportunity to see for yourself the Savings in Power, Reliability, Long Life and Cleanliness resulting from the use of S. K. F. Ball Bearings.

Meet us at Booth 135, Main Floor, Main Aisle, also in the Basement, Booth 375

Get This Book

This Book will enable Textile Manufacturers to keep abreast with the rapid development of Ball Bearing Applications on Textile Machinery.

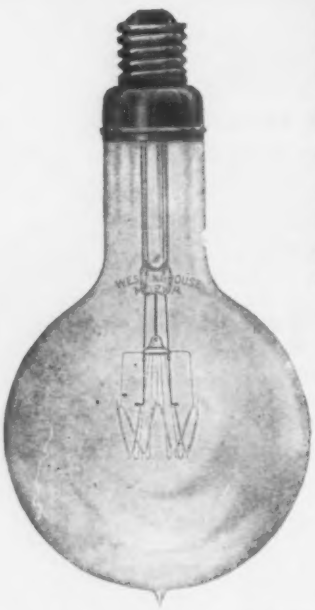
Sent FREE on Request

S. K. F. Ball Bearing Company

50 CHURCH STREET, - - - NEW YORK

Big Price Reduction Westinghouse Mazda Lamps

A 10% Reduction on all sizes effective April 1st. Send for new price folder giving full information



Big New Westinghouse Mazda Lamps and Another Big Reduction in the Cost of Light

The latest development of the Mazda Lamp —improved Westinghouse Mazdas which operate at approximately .6 watts per candle, an efficiency 33% higher than any ever before obtained.

There are two sizes designed for lighting large interiors and for exterior lighting, also five sizes for street series service.

750 watts (approximately 1100 candle power)
1000 watts (approximately 1700 candle power)
80, 100, 250, 400 and 600 candle power (6.6 amperes series burning)

You can rely on their quality because they are labelled *"Westinghouse"*

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Textile Engineer

200 Fifth Ave., - New York

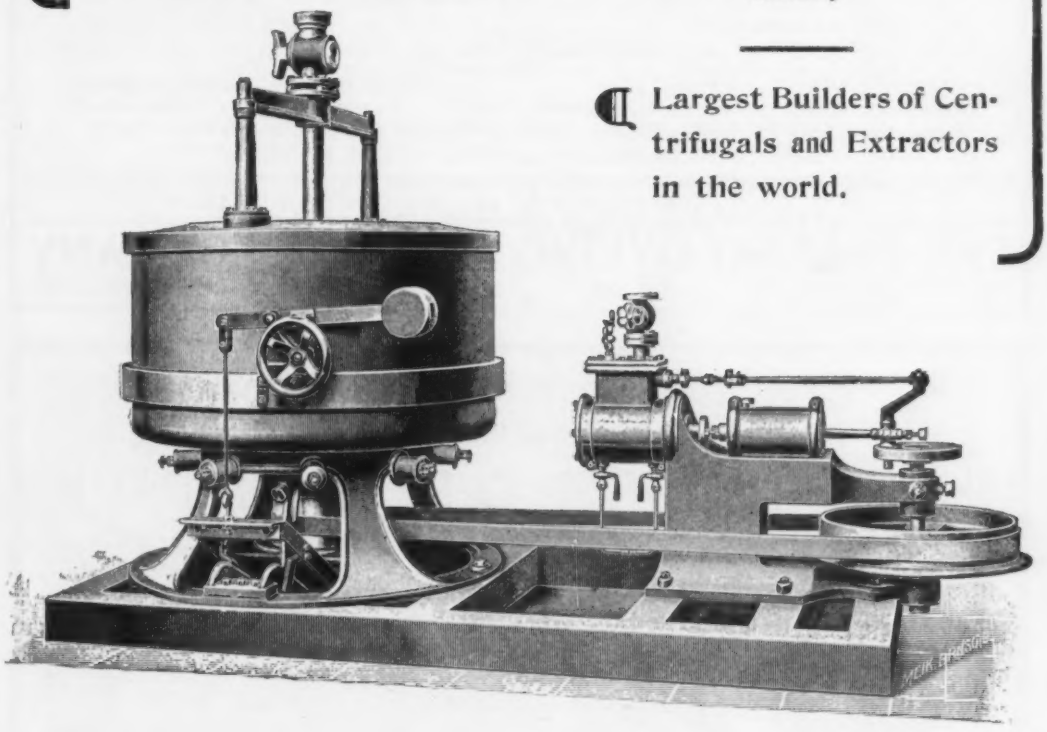
Sole Representative in the U. S. A. and Canada for

GEBR. HEINE

VIERSEN

Germany

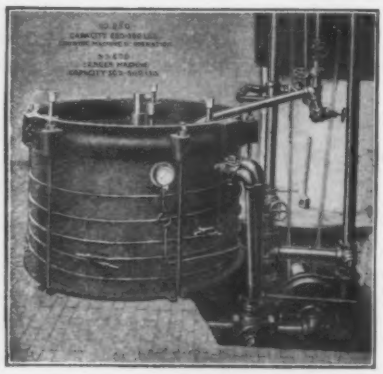
¶ Largest Builders of Centrifugals and Extractors in the world.



¶ HEINE Centrifugals have been the "Standard" for 26 years.

¶ The Heine firm does not build any other machinery, they are specialists in centrifugals and extractors.

¶ If you are interested in such machinery for any purpose, at any time, it will pay you to consult me.



UP TO THE MINUTE

Wool and Worsted Top Dying

IN THE

PSARSKI DYEING MACHINE

PRACTICAL—ECONOMICAL—THOROUGH

UNIFORM COLOR

Dyes Wool and Tops—100 per cent. of Batch—absolutely level color throughout

NO FELTING

The Mass—Dormant While Dyeing—Cannot be Felted. Fibre comes out as Alive—Soft—Elastic and Spinable as it was Before Dyeing

DYES LOOSE WOOL		DYES TOPS	
Acid Colors	2,000 pounds per day	Fine Wool	500 pounds per batch
Top Chromed Colors	1,500 " "	Coarse Wool	800 " "
Bottom Chromed Colors	1,000 " "		

THREE BATCHES PER ELEVEN HOUR DAY

Tops are packed rapidly and easily. No special system or building. Tops are dyed uniform color throughout

NO FELTING—NO RE-COMBING—NO ADDITIONAL NOILS

SAVES 5 TO 10c PER POUND OVER OTHER MACHINES

SAVES 90 PER CENT. STEAM OVER HAND KETTLE OR REVOLVING MACHINES. SAVES DYES—LABOR—WATER

IS SIMPLE—STRONG—COMPACT—DURABLE—PRACTICALLY NEVER NEEDS REPAIRS

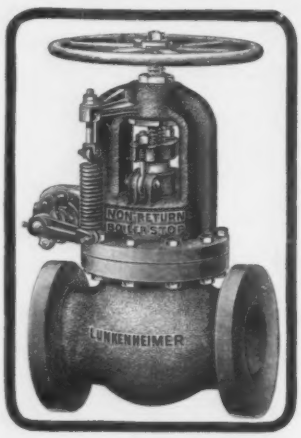
THE PSARSKI DYEING MACHINE COMPANY

3167 Fulton Road :: :: :: :: CLEVELAND, OHIO

Protection to Life and Property

assured by the use of

LUNKENHEIMER NON-RETURN SAFETY BOILER STOP VALVES



Should the pressure in one of the boilers of a battery suddenly decrease, caused by an accident, a *Lunkenheimer Non-Return Safety Boiler Stop Valve* attached to that boiler will immediately close and prevent steam from the other boilers of the battery entering and discharging through the disabled one.

Chattering of the disc, caused by the fluctuation of the steam pressure, is prevented by an ingenious outside spring arrangement.

All parts subjected to wear are renewable.

Your local dealer can furnish them, if not, write us.

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Not a Cent for Paint or Repairs in Twenty Years

Maine Manufacturing Company's Plant, Nashua, N. H.
One of the Largest Refrigerator Factories in the World.
Covered with J-M Asbestos Roofing.

The great plant illustrated here was covered with J-M Asbestos Roofing twenty years ago and in all that time it *has not cost a cent for maintenance.*

A remarkable record. But not exceptional for J-M Asbestos Roofing. This roofing has given similar service for fifteen to thirty years on hundreds of factories, barns, and buildings of all types.

J-M Asbestos Roofing

never requires coating, gravel, or any other form of protection—because it contains nothing to deteriorate. Made of Asbestos (rock) fibres and Trinidad Lake Asphalt—both minerals. Literally a roofing of pliable *stone*, with all the qualities of stone. Gives perfect fire protection. And is not affected by heat, cold, salt air or chemical fumes. Lower in first cost than tin, slate or shingles. *The cheapest of all roofings on the cost-per-year basis.* J-M Roofing Cleats, packed in each roll, make joints absolutely water-tight. And as they eliminate the smearing of seams with black cement, they give the roof an unbroken, handsome white surface. Furnished in ready-to-lay and built-up form. Sold direct if your dealer can't supply you.

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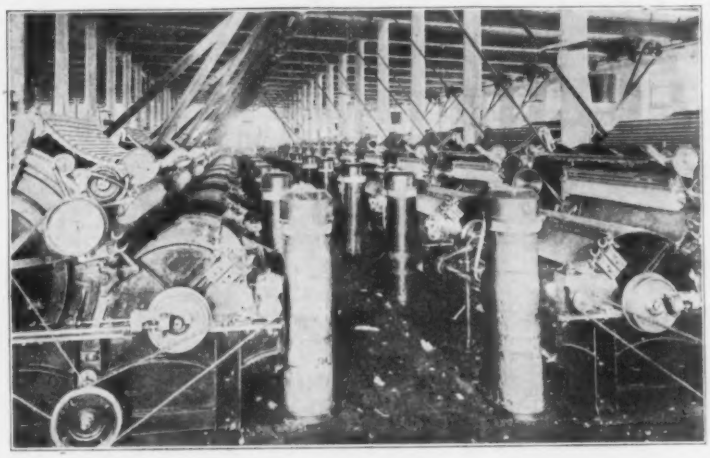

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All Trouble Caused by

STATIC ELECTRICITY

In This Card Room Absolutely Removed

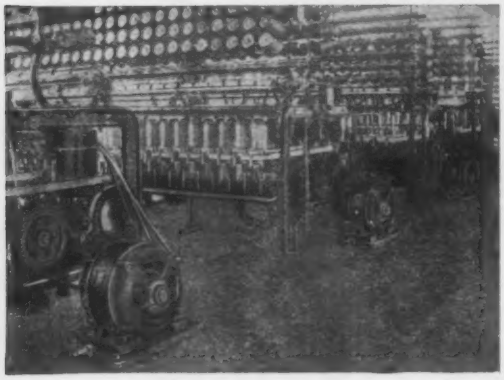
One of the hundreds of our enthusiastic customers who are profiting by the use of the

Chapman Process

HUMIDIFIERS DISCARDED

The Chapman Electric Neutralizer Co.

PORTLAND, - - MAINE



Westinghouse Motor Driving Twisters

The Greatest Possible Production

from any textile machine can be obtained if that machine is driven by the particular Westinghouse Textile Motor made for it. There is a complete line of these motors, differing in size and operating characteristics. Some one of these motors forms the best possible drive for each textile machine.

Westinghouse Electric Textile Motors

are especially designed throughout for textile service and have proven so highly satisfactory that they are in general use for textile work.

The Westinghouse Company, through its textile engineers, will gladly aid in investigations to determine how economics in textile mill drive can be obtained.

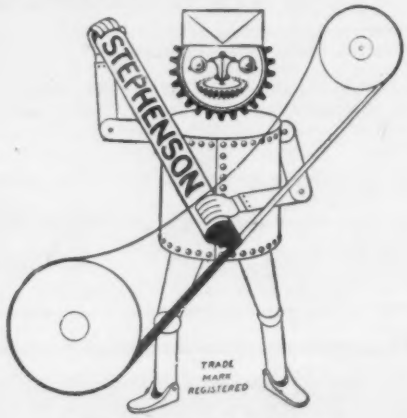
Westinghouse
Electric & Manufacturing Co.
East Pittsburgh, Pa.

Boston Safe Deposit & Trust Bldg. **New York** 165 Broadway **Charlotte** American Bldg.

STEPHENSON

Bar Belt Dressing Prevents Waste of Power and Fuel

Because it stops the belt from slipping and causes it to transmit all the Power without being made so tight as to cause unnecessary friction.



This Registered Trademark Is Your Protection

It appears on each stick of Genuine Stephenson Bar Belt Dressing—the dressing that has held to its uniform quality for 23 years.

This belt dressing surpasses liquid preparations, for there is absolutely no waste in applying it to the belt, and it is put up in sticks or solid form, so that it can be carried about in the tool-box. For these reasons—

1 Pound Lasts as Long as 2 Pounds of Any Liquid or Semi-Liquid Dressing.

There are two brands, Red Label for leather belts, Green Label for rubber, canvas, or balata belts.

Prices, literature and sample sent to any mill on request.

Stephenson Mfg. Co.
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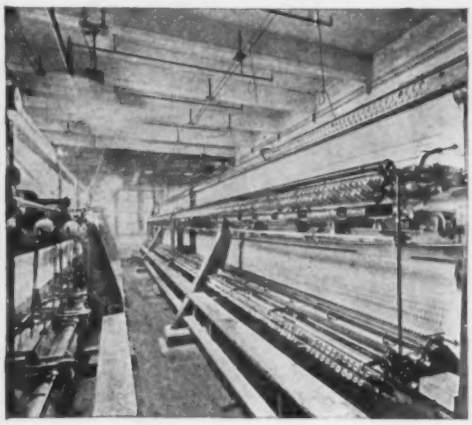
Albany, N. Y.



This illustration is reproduced from a photograph of an Embroidery Machine taken while lighted by Cooper Hewitt Lamps

Your profits depend largely on your employes' eyes

A COOPER HEWITT lighted mill has the advantage over other mills of daylight efficiency—daylight production every hour.

If they can't see well—if their eyes are tired and strained—breakage and spoilage increase and production falls off.

No tired eyes—no blinding glare—no sharp reflections—no dark shadows. Every object stands out clearly and distinctly—many objects better than in daylight.

Let us show you how Cooper Hewitt light will increase your profits. Better still, you try the lamps.

Will you try them now?

Write for Bulletin 747

COOPER HEWITT — THE EFFICIENCY LAMP

Cooper Hewitt Electric Company

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Chicago, 506 Fisher Bldg.
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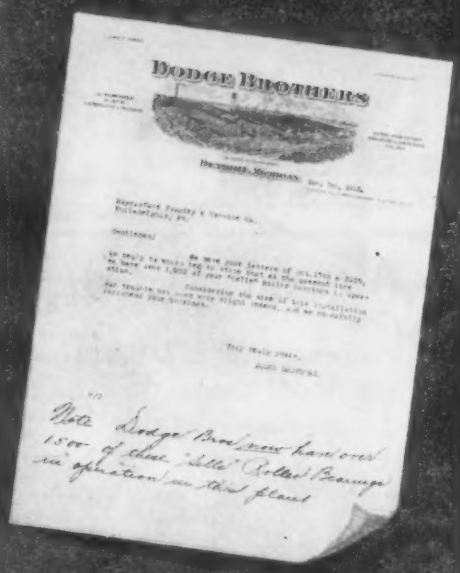
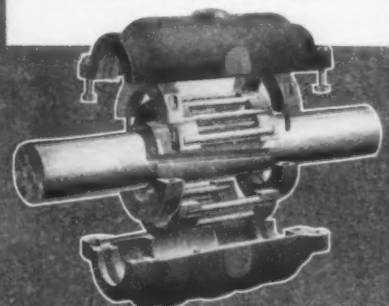
You, Too, Can Get Service Like This



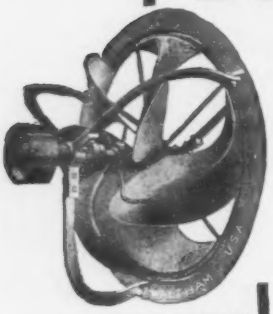
"SELLS" ROLLER BEARINGS

always give maximum service, as hundreds of letters like this show, and reduce line shaft friction from 25 to 50% or more, because their structural features—clear in the picture—have taken into account every retarding and wearing element. Easy application and inspection is assured by the fact that EVERY PART of bearing is SPLIT. The record of these bearings in other plants is a guarantee of service "like this" for you. Write now for FACTS on Commercial Roller Bearings, Power Transmission Machinery, Grinders, Punches and Shears

Royersford Foundry & Machine Co.
56 North Fifth St., Philadelphia



Davidson Fans



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ARE THE MOST EFFICIENT

Equipped with ball thrust and ring oiling bearings which have removable babbitt sleeves that can be renewed in 5 minutes without taking the fan or bearing to your machine shop.

Consult us about the conditions in your Dye House or other department.

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MASSACHUSETTS FAN CO.
400 HOWARD ST. WATERTOWN, MASS.

Murphy Automatic Smokeless Furnaces

Automatic in ***all*** functions. Adapted to ***all*** types of boilers and to ***all*** sizes. Handle economically ***all*** grades of bituminous coal, feed and distribute it, and remove ***all*** ash.

Murphy Furnaces are practically smokeless—operate with natural draft—and effect big fuel savings. Maintainence and operation costs are low.

MUCH OF INTEREST AND VALUE FOR YOU IN THE CATALOG

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Murphy Iron Works

New York Pittsburg **Detroit** Buffalo Chicago
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Guaranteed Calender Rolls FOR ALL PURPOSES

The line includes:
Paper Rolls,
Husk Rolls,
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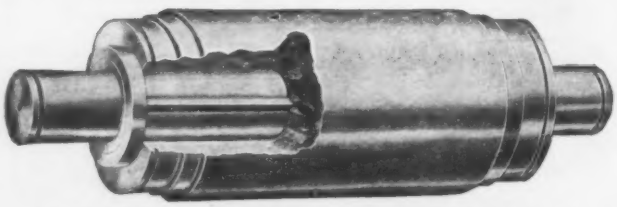
and Combination
Cotton
and Husk Rolls



All are fitted with Perkins Patented Spline, which prevents slipping or turning on the shaft.

THE PERKINS ABSOLUTE GUARANTEE COVERS EVERY ROLL

Ask for Complete Catalog No. 85 B

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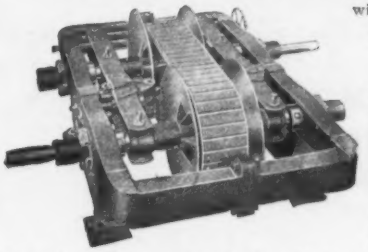
THE EASE AND QUICKNESS



with which the speed of any machine may be increased or reduced with

"The Reeves" Variable Speed Transmission

make it possible for your men to keep their machines running at the highest consistent speed all the time and for any kind or weight of fabric.

He merely turns a hand wheel to get absolutely any speed he needs instantly, while the machine is running.

The wide range of variation with an unlimited number of speeds makes it possible for you to run any grade or weight of goods through the machine at exactly the right speed to produce the highest quality and at the same time increase the output.

"The Reeves" Variable Speed Transmission may be used to drive any machine, and saves time, labor, power and trouble. Hundreds are operating tenter frames, dryers, mangles, printing machines, mercerizers, soapers, singeing machines, washers, etc.

The saving and increased production added together amount to many times the cost of "The Reeves" Variable Speed Transmission each year. **Our New Catalog T-16 will tell you about it.**

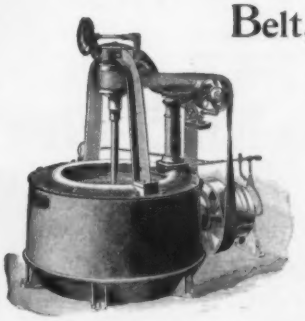
WE WILL EXHIBIT AT THE TEXTILE EXHIBITION, BOSTON, APRIL 27-MAY 2

REEVES PULLEY CO., COLUMBUS, IND.

Agents: Lewis E. Tracy Co., Boston; Patterson, Gottfried & Hunter, New York City; W. E. Shipley Machinery Co., Philadelphia

Tolhurst Self Balancing Extractors

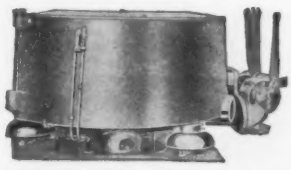
Belt, Engine and Motor Driven



Over Driven Extractor

DYE TUBS AND TANKS

Reel Dyeing and Bleaching Machines Washing Machines



Open Top Extractor

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FRED H. WHITE, Southern Agent, Realty Bldg., Charlotte, N.C.

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OF EVERY DESCRIPTION FOR COTTON, WOOLEN AND WORSTED.

Sole Agents for

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JOSEPH SYKES BROS., Hardened and Tempered Steel Card Clothing for Cotton.
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Scutchers	Washing	Sewing
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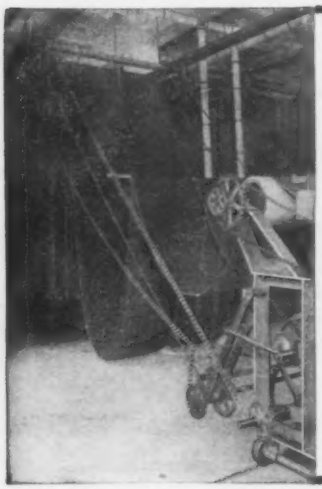
THE BIRCH WOOLEN WORSTED FINISHING MACHINERY

Crabbing	Steam Finishing	Cloth Openers
Piece Dyeing	Steam Blowing	Folders
Singeing	Sewing	Squeezing
Tentering	Tacking	Napping

BIRCH BROTHERS

ALBERT BIRCH, Textile Mechanician

SOMERVILLE MACHINE WORKS, SOMERVILLE, MASS.



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For shrinking woolen, worsted and cotton goods; drying oilcloth, or waterproof cloth, and curing rubberized cloth.

Can be attached to any machine or operated separately

In use by the United States Quartermaster department for shrinking uniform cloth.

Write for catalogue and prices

Reliance Machine Works

Frankford, Phila.

The BERRY WHEEL
EXTRACTS THE MOISTURE

It is just what you want to remove the moisture from all kinds of textiles. There are other ways (more expensive but less efficient) of trying to save on this process but—DO IT THE BERRY WAY.

For Drying and Ventilating Facts, Write To
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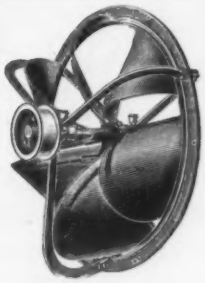

This is the
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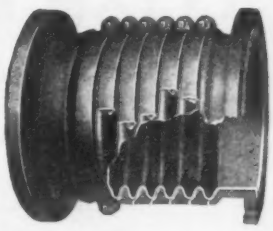
RELIABILITY IS THE CHIEF FACTOR IN POWER PLANT WORK.

If you want an expansion joint that is on the job 365 days a year, and that doesn't have to be packed now and then to keep it tight, one that requires no attention whatever, you should put in a



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Self-Equalizing Expansion Joint

The BADGER is a Corrugated Copper Joint made for steam, water or gas pipe lines, built to stand any pressure, to take up any amount of expansion, and to require absolutely no attention after installation.

IF YOU ARE INTERESTED IN THAT KIND OF A JOINT, WRITE NOW FOR OUR CATALOGUE

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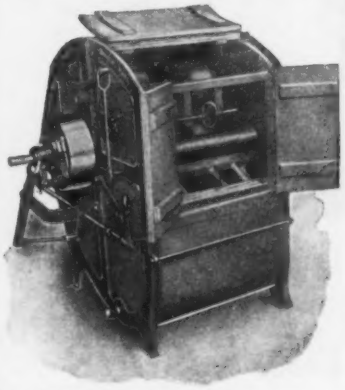
Do You Take the Time and Trouble of Operating Your Large Fulling Mills and Washers For a Small Run of Samples?



Why not install a Combined Fulling Mill and Washer especially designed for finishing samples?

It is in every way like the large machines, but made on a small scale. Takes space four feet square and may be moved about.

Made by
Rodney Hunt Machine Co.
46 Mill Street, Orange, Mass.
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The condition of Aprons or Rub Rolls
is a matter of the greatest importance

PARAGON AND UNION APRON OILS keep the aprons or rub rolls soft and pliable. They not only tend to increase production but make a smooth roving.

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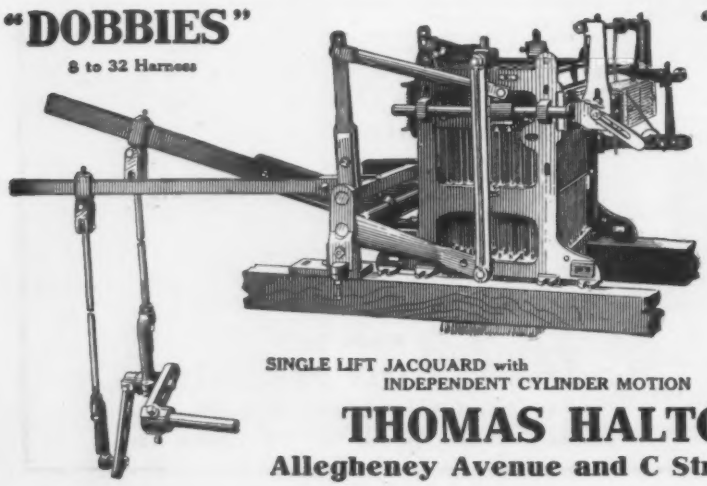
"DOBBIES"

8 to 32 Harness



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INDEPENDENT CYLINDER MOTION

"JACQUARDS"

208 to 2608 Hooks

ALL TYPES

HARNESS BUILDING

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Received the HIGHEST AWARD on recommendation of the FRANKLIN INSTITUTE for

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Is the largest manufacturer of HUMIDIFIERS in the world. The last twenty years receiving the HIGHEST AWARD in this country and Europe for its AIR-MOISTENING SYSTEM. EIGHT GOLD MEDALS and others.

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Has Been Adopted by the Representative Manufacturers of this Country.
The only System adopted in the Textile Schools. Write for booklet "T" on Humidification.
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247 ATLANTIC AVENUE
BOSTON, MASS.

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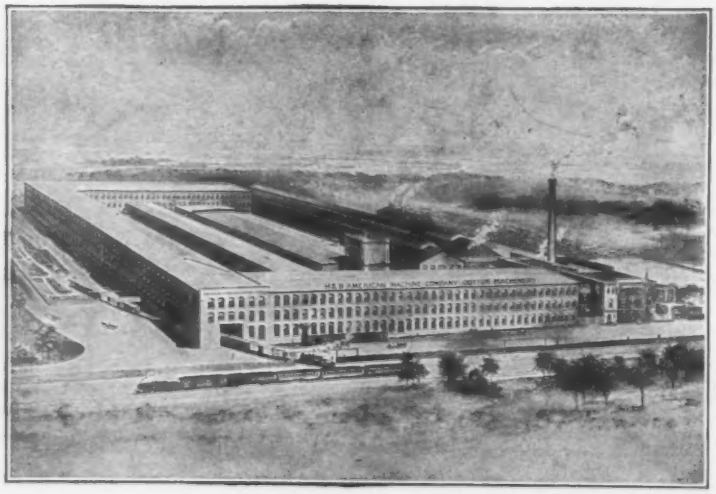
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



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APRIL, 1914

Monthly Comment.

Storing the American Cotton Crop

There has probably been no clearer statement of the need, the advantages and the proper organization of a system of storage for the American cotton crop than that made by D. A. Tompkins, of Charlotte, N. C., in an address at Shreveport, La., on Dec. 12, 1904, from which we take this extract:

We furnish to the world one year a crop which is overwhelmingly big and the next year a crop which is insufficient to supply the ordinary demands. This creates a condition in which the speculator holds high carnival in dealing in cotton. The legitimate merchant and the manufacturer are made to turn gambler whether they will or not and the ordinary course of trade is tremendously disturbed. The average production for ten years if it could be maintained, would bring about an average price. Inasmuch as the climate forbids this, from one year to another it is important that the production shall be by some artificial means brought to more or less of an average and thereby the price would be brought to an approximate average. I believe that this might best be done by the development of a system of warehouses to do far more than shelter and care for the cotton. Existing warehouses simply issue a receipt for a bale of cotton. No effort is made to state what kind of cotton the receipt stands for, nor does the warehouse company assume any responsibility for the grade, weight, or anything else connected with the cotton. Insurance is higher than it ought to be.

I believe that if a comprehensive warehouse company would engage the best graders to be had, and would issue a certificate in which every factor relating to the bale of cotton was accurately entered, and the warehouse company stand responsible for the description of the cotton as given in the receipt, that such a receipt could be traded in to better advantage than the bale of cotton itself. The purchaser of the receipt in Carolina, in England or in Germany would know more about the particular bale of cotton in question from the receipt in hand, than he would know about it if he saw the bale of cotton. Cotton being one of the very best collaterals on the market, such receipts standing for the cotton exactly, might be traded in in the financial institutions of the whole world. Thus it would be feasible to bring cotton within the reach of all the surplus money of the world, and when there was a large crop, the surplus would undoubtedly be carried over by financial institutions as investments until a small crop should bring the price to an average. It would have the forcing of the surplus on to the market and by proper construction of warehouses, proper protection against fire and building in proper units, the cost of carrying cotton could be very much reduced by reduction of insurance and by reduction of interest rate in consequence of the certificate being an accurate representation of the cotton itself and being as good for money in Providence or Liverpool as in the town in which the warehouse is located.

To Mr. Tompkins belongs the credit of having been the first to propose a comprehensive system for warehousing our cotton crop, and to formulate the essential details for its organization. Now after the lapse of ten years there is a prospect of action. Two methods are proposed: one, that the warehouses be owned and controlled by the State governments; the other provides for ownership and control by warehouse corporations. Among the advantages claimed for government control is the possibility of obtaining speedy redress against any abuses of the warehouse system. The advocates of corporate control claim on the other hand that a corporation could

provide a guarantee of weights and grades which the government would not provide. Another advantage claimed for the corporation is that it could cover the entire cotton belt with one organization. The State of Louisiana has already appropriated $3,000,000 for cotton warehouses under State control and with a capacity of 1,000,000 bales, the central depot to be located at New Orleans. The plan to establish cotton warehouses under government control is also well advanced in South Carolina, and a bill providing for the system is now before the Legislature of that State. The corporate plan is being promoted by J. B. Duke, of the American Tobacco Co., and a report of the movement appears in this issue.

Corporate and government ownership each have their advantages and disadvantages, and it is fortunate that both methods are to be tested by an actual trial. The vast interests involved in the cotton warehouse system makes it of the greatest importance to the world's textile trade that no unsound or dangerous plan should become established. One of the most serious dangers is the possibility that corporate ownership will become the basis for a gigantic cotton trust, oppressive to the cotton growing and manufacturing industries as well as to the consumer of cotton goods throughout the world. The possibilities in this direction can be gauged by the fact that the American cotton crop is valued at approximately $1,000,000,000 a year.

This serious danger of a cotton trust with the warehouses under corporate ownership, and the unquestioned advantages that such corporate ownership possesses have led some of the most experienced men in the textile trade to conclude that the warehousing of the cotton crop should be by corporations under strict government regulation. The immense interests involved and the complicated nature of the problem prompt the utmost caution in organizing the warehouse enterprise in order that the ideas conceived and so clearly stated by Mr. Tompkins a decade ago may be carried out for the benefit of the world's cotton trade, which includes all engaged in the production, handling and use of raw cotton, partly manufactured products and finished goods.

The Wool Goods Tariff from a Bradford Viewpoint

We give in this issue an abstract of an address by Sir Swire Smith at Keighley, England, on the Underwood tariff and the industry of Bradford. The speaker showed very clearly the dependence of the British woolen and worsted industry on the American market, and the violent fluctuations in British, and particularly Bradford, trade as a result of changes in our tariff during the past twenty-five years. He made, however, a number of mistakes, which seriously impair the force of his statement. For example he says:

> The abnormally high price of wool and wool goods in America has made clothing exorbitantly dear, and has led to an adulteration of cloth and dress goods by a stealthy admixture of cotton and shoddy. The result is shown in a greatly reduced consumption of wool, which at the present time is recorded as five pounds per head in the States, against much more than double that weight per head in this country (United Kingdom). . . .
>
> The greatest gainer by this transformation (reduction of the tariff) is the American citizen, the man in the street and on the farm, with his wife and family—numbering 100 millions of people—who have been compelled by the outrageous tariff to be clothed in high-priced goods of doubtful quality, and who will soon have the choice of the world placed before them on thousands of shop counters throughout the Union at prices 20, 30 or 40 per cent. lower than they have been paying.

Sir Swire's statistics and conclusions are bad misfits. The statistics refer to the wool used by the mills of the respective countries, while the conclusions refer to the quality and cost of wool clothing worn by the people in the United States. British mills make a vast quantity of wool goods for export, while American mills have manufactured but a negligible quantity of wool goods for other countries. That and not our tariff on wool is what has made the per capita amount of wool used by the mills of the United Kingdom much more than double that used by the mills of the United States.

Moreover the statistics the speaker gave are of doubtful value in any case because they refer to the grease weight of wool used

in the mills. Even if they were relevant, the figures given by Sir Swire would have to have been reduced to a scoured basis before any useful comparison could be made. As he uses them they are both irrelevant and deceptive.

The conclusions regarding the cost and quality of wool clothing are not much better. It is unddoubtedly true that the quality of the wool goods consumed in this country has been adversely affected by tariff conditions, but that result has been due, not to the abnormally high price of wool, but to the irregular adjustment of the duties on wool. This influence on the quality of wool goods consumed has been greatly exaggerated, the exaggeration having been facilitated by the fact that no reliable statistics are available by which the quality of wool consumed by the wearers of clothing could be measured.

Sir Swire's charge that "the abnormally high price of wool and wool goods in America has made clothing abnormally dear" is wholly unfounded. The entire tariff on wool amounted approximately to only 80 cents on a $20 suit of clothes, and the average difference between the cost of foreign and American woolen and worsteds would not amount to $1.50 on the same suit. That Sir Swire is wrong in regard to the increase of the cost of clothing in the United States because of the wool duty, is not a matter of surmise, but is demonstrated by the fact that the removal of the duty on wool has not brought about a reduction in the price of wool clothing. The amount was relatively so small that it has been lost in the commercial shuffle between wool manufacturer, clothing manufacturer and retailer.

Sir Swire is not content with free wool. He looks far beyond,—for the benefit of the American consumer—and incidentally of Bradford:

> The sheet anchor of the Underwood bill lies in its broad and generous provision for the benefit of the consumer in removing the taxes from food, and for the manufacturer in free raw materials, from which one may hazard the opinion that neither consumer nor producer will go back. And yet it is not likely that the agricultural classes and the general public who, under the free food clauses of the new tariff get no protection, will willingly consent to the continued protection of the manufacturers. . . .
>
> Does not this change point to a greater production of wool the world over, and in the first instance to an enlarged field for the American manufacturer at his own door? Does it not point also to larger exports from Bradford of all the commodities that find a market in America and that give employment to the people of this district?

Sir Swire's free trade formula by which the woolen and worsted men in the United States are to be kept busy by increasing our imports from Bradford can be placed with his saving of 20 to 40 per cent. in the cost of our clothing by a reduction in the cost of the cloth, which if all given to the consumer would amount to less than 10 per cent. Although wrong in his facts, his reasoning and his conclusions, Sir Swire makes clear to us all the object nearest to his heart, free trade with the United States for the supposed benefit of Bradford. He would have us believe we are saving 40 per cent. in the cost of our clothing as a result of the changes made by the Underwood bill. He would have the American wool manufacturers believe their mills will be better employed as our imports from Bradford increase. He would have the American wool grower retaliate for free wool by demanding free goods. These free trade incantations will not fool the American people, the overwhelming majority of whom went on record at the last presidential election in support of adequate and fair protection to all industries for which the resources of this country are adapted.

Wanted, A Name

What is now known as artificial silk is in need of a new and shorter name to distinguish it from natural silk. The British Silk Association has tried and failed to supply the deficiency, which is common to all countries. The defect in the present designation "artificial silk" is its length, which leads to the dropping of the adjective, particularly in the retail trade, and the use of the word "silk" to indicate both the artificial and the natural product. British retail merchants as a result have been prosecuted and fined un-

der the Merchandise Marks Act, a recent case being reported in the Guardian as follows:

A case which turned upon the question of a trade description for artificial silk was heard at the Leeds Police Court yesterday, when Messrs. Matthias Robinson, Ltd., of Briggate, Leeds, pleaded guilty to two summonses for applying a false trade description, namely "silk" to a knitted scarf, at Leeds, on November 3, and for unlawfully selling the scarf as silk. The Board of Trade were prosecutors, and the Silk Association of Great Britain and Ireland were the informers.

The Magistrate said he was willing to mitigate the penalty almost to a vanishing point, but the costs of the case were very large. It was usual in cases of that kind to impose heavy penalties, but in view of the attitude of the defendants he would inflict the nominal fine of 40s and 25 guineas costs.

Wool Growers and the "Pure Cloth" Law

The National Wool Grower, Salt Lake City, the organ of the National Wool Growers Association, has the following editorial in its March issue:

It is really surprising the icy stillness maintained by the newspapers and magazines on the subject of a pure cloth law. Hardly one of them has raised its voice in favor of this much-needed and beneficial legislation. Why this profound silence? Is it because the pages of such papers are filled with advertisements of shoddy clothing? Many of these magazines claim to stand for the public welfare and to exercise wonderful power in moulding public opinion. Their silence on this pure food fabric bill begins to look as if the size of the mould depended upon the number of advertising dollars that it accumulated. When the sheepmen had a trifling tariff on wool, nearly all of the current magazines devoted most of their space to telling the public what a wonderful burden this placed on the poor of the country, yet through the sale of shoddy and cotton as wool the public is robbed of 100 times more than the wool tariff ever cost them and not one of these magazines raises its voice in defence of the consumer.

In urging the enactment of a pure fabric law the wool growers are in earnest and many of them are becoming disappointed and somewhat disgusted at the lethargy exhibited by many Republican and Democratic Senators and Congressmen on this subject. Very few indeed, of the men who are supposed to represent us, whether Democrat or Republican, have ever taken any interest in a pure cloth law. Later the wool growers may want to know why this is.

The wool growers need not wait until "later" to "know why this is." For years the organizations pretending to represent the wool growers have persistently misled the public and their own members by advocating measures that, like the Grosvenor, Murdock and Lindquist bills, could not be enforced if they were placed on the statute book. The impossibility of distinguishing new wool from shoddy when mixed and made into cloth has been repeatedly exposed in the past twelve years, but the National Wool Growers Association and other associations of wool growers have continued during all that time to harp on the need of legislation to require the labeling of cloth to show the percentage of wool and shoddy.

Men who speak for wool growers are expected to know what wool is. If they lack that knowledge they should at least be willing to be enlightened on that important point. Nevertheless the record of organized American wool growers on this point for the past thirteen years excites the suspicion that they have neither known nor cared to know that shoddy is wool and that for this reason the "pure cloth" bills they have advocated are not worth the paper they are written on. Among the earliest of these impossible bills which the wool growers have advocated, was the one introduced in the House of Representatives by Congressman Grosvenor in 1901. In January, 1902, we exposed the absurdity of that bill. What effect did that exposure have on the supporters of the measure? Did it cause them to abandon the impossible features? Not at all. They were forced to acknowledge the force of our argument, but so wedded were they to their idol that, instead of abandoning the bill they proposed an amendment which made the measure even more absurd. Our exposure appeared in January, 1902. On May 21 of the same year, the Hon. William M. Springer, representing the National Live Stock Association, appeared before the Ways and Means Committee and made the following statement:

It has been stated by some manufacturing papers or persons interested in manufacture that some qualities of shoddy or mixtures or adulterants are more valuable than the wool itself which is contained in the fabric. That is true in some respects, as I will show you in a moment. Therefore, in order to bring those goods out of this category I desire to add at the end of the first section the words "Or of goods or fabrics composed in part of such wool and of other ingredi-

ents of equal or superior value," so that the latter part of it will read:

> "And the words 'woolen goods' shall be held to mean goods or fabrics composed wholly of such wool or of goods or fabrics composed in part of such wool and of other ingredients of equal or superior value."

During the past twelve years the absurdity of measures that require wool and shoddy to be distinguished from each other in cloth has been exposed over and over again. It would be as sensible to require that articles of iron be labeled to show the proportions of old and new iron in them. A school boy ought to know better than that, and yet during all these years associations of wool growers have advocated the ridiculous proposition, as we find their national organization advocating it now. Not only that, but the organ of the National Association of Wool Growers has the effrontery to charge newspapers and magazines with being bribed and to threaten Senators and Representatives with defeat at the polls, because they do not support this shoddy absurdity. The organ of that association says that "later the wool growers may want to know why this is." They should know now. It is because the "pure cloth" plan advocated by the National Wool Growers Association is so absurd that no one can defend it without becoming ridiculous.

The National Wool Growers Association has a talent for being so wrong on public questions as to make support impossible. It was so on the wool tariff question. When there was still a possibility of securing a fair tariff on wool, the National Wool Growers Association stubbornly insisted on the impossible "scoured content" scheme, and thus made it impossible for protectionists to unite in support of a definite and practicable plan for protecting the wool-growing industry. Now when the need of a workable law to prevent misrepresentation and fraud in the sale of goods is becoming evident, that association sticks to the "pure wool" and "shoddy" impossibility. It is high time for the wool growers "to know why this is so" and to insist that their trade representatives shall take the precaution to be right before speaking for the industry.

The most serious obstacle to the enactment of an effective Merchandise Marks Act at the present time is the public sentiment created by organizations of wool growers in favor of impracticable legislation requiring the labeling of wool goods.

—:—

Employer and Employe in the Waist and Dress Industry

The settlement of the last great strike in the New York waist and dress industry resulted in an agreement under which a most thorough investigation of wages and working conditions has been made by a commission known as the Wage Scale Board, consisting of an equal number of representatives of the manufacturers' association and the workers' union, the object being to obtain information that would enable wages and working conditions to be regulated intelligently and with justice to both employer and employe. An essential part of this investigation was the gathering of statistics. At the outset the investigation was placed in charge of N. I. Stone, for many years in the government service at Washington. A report of the first year's investigation has recently been made, and in order to bring it to the attention of those interested Mr. Stone has explained the results in a stereopticon lecture in New York. So great was the interest in the question that on the invitation of the Consumers League of Massachusetts, the lecture was given in Faneuil Hall, Boston, on April 4. Diagrams were thrown on the screen showing the fluctuations in wages, the number of people employed and many other facts regarding the dress and waist industry.

Mr. Stone made a number of suggestions, among them being the following: A proposal to divide the workers into four groups, apprentices, graduated apprentices, workers of average skill, and workers of more than average skill, the wages to be based on these four classes; the registration of apprentices; and the establishment of a trade school. He also urged a white label to distinguish garments made in protocol shops under sanitary conditions. The complete report is to be published shortly as an

official document by the Bureau of Labor Statistics at Washington. Mr. Stone is now working on a second report dealing with the possibilities of standardization of piece ratio in the garment industry.

The work of the Wage Scale Board, on which Mr. Stone made his report, is an event of great significance in the adjustment of the relations between capital and labor, in that it is based on a painstaking investigation of facts which are to serve as a basis for regulating wages and working conditions. While the dress and waist industry is the one directly benefited by the present investigation, the principle is of broad application and for this reason the report should be studied carefully my employers and employes in not only textile manufacturing, but all other industries.

Living Under Free Trade

The Manchester Guardian has recently been supplying some excellent illustrations of one of the principal evils of free trade, the concentration of population in small

FIG. 1. THE KITCHEN RANGE WITH ROOM FOR ONLY ONE PAN ON THE FIRE

areas devoted to trade and industry. The exponents of free trade have frequently made us familiar with this condition by pointing to the fact that 10,000,000 people live within forty miles of Manchester Town Hall. They have taken pride in this concentration, apparently oblivious to the fact that it constitutes the most serious indictment against the Manchester doctrine. The more recent revelations of this concentration were made by the Guardian in connection with the protest of tenement dwellers on the Blackley estate against an increase of rent from 7s ($1.68) to 7s 6d ($1.74) per week. These tenements in Blackley, which is on the outskirts of Manchester, are comparatively new, having been

FIG. 2. THE COMBINED SCULLERY AND BATHROOM

built during the past thirteen years to relieve the overcrowding in the center of the city. The extent of this overcrowding is shown by the district known as Hulme, where 63,177 people live in an area of three-quarters of a square mile, equivalent to 84,765 per square mile, giving a space about 18 feet square to each person. These conditions becoming unbearable, a large number of tenements were demolished and others built just outside the city. Recently the owners of the Blackley tenements gave notice of an advance of 3d (6 cents) per week in the rents of the houses. In protesting against this increase the tenants pointed to the condition of the houses, their complaints being stated by the Guardian as follows:

Some of the interior arrangements of the Manchester Corporation's houses at Blackley have

been strongly criticized by the tenants, who are in revolt against a decision of the Corporation to raise their rents. The photographs show some of the causes of complaint in the 7s houses. Fig. 1 is the kitchen range. There is room for only one pan on the fire, and the housewives have had to use gas cookers. Fig. 2 the combined scullery and bathroom. It is an annex of the kitchen, but there is no door and bathing has to be done in sight of the occupants of the kitchen. Fig. 3, a "best bedroom." These, with their low sloping ceilings, the tenants describe as a "boxroom."

The efforts to ameliorate the housing conditions bring out clearly the hopelessness of

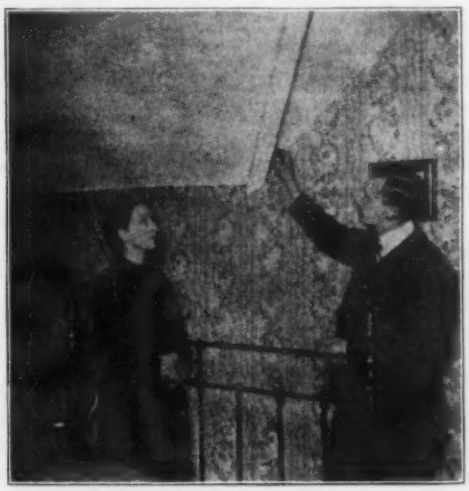

FIG. 3. A "BEST" BEDROOM IN MANCHESTER

any real solution in Manchester under the present fiscal policy. A five-story building with 48 one-room and 237 two-room tenements was erected, but it did not prove a success, the tenants preferring to live nearer the ground. Two-story flats like the one shown at Fig. 4 were built, forty in a row, each tenement consisting of a living room, bedroom, kitchen and sanitary accommodations for 4s 6d ($1.08) per week, but still the problem of housing the people grows more difficult from year to year, and the local struggle to relieve the congestion grows more strenuous, more pathetic and more hopeless.

In the very nature of things the present efforts can only slightly ameliorate conditions. The only real remedy is to be found in a removal of the underlying cause, which is free trade with its tendency to concentrate within narrow areas the industrial and commercial activities for supplying a demand from wide areas, to the physical, social and financial detriment of both British producers and foreign consumers. By a curious chance the Guardian a few days before it gave the details of overcrowding in Manchester published the Board of Trade returns of foreign trade for the previous month, which illustrated the primary cause of the congestion of population and its attendant evils at Manchester. The exports of cotton yarns and fabrics, Manchester's specialties, for that month were valued at $62,647,782 or at the rate of $751,773,384 per annum, forming approximately one-third of the total British exports of manufactured

FIG. 4. TWO STORY FLATS

products of all kinds. The manufacture and handling of this enormous quantity of merchandise within the narrow confines of Lancashire is the cause of the overcrowding from which the population of that county is suffering. Of this quantity of cotton yarn 54 per cent. was shipped to British colonies, and over 90 per cent. of this trade was with crown colonies where free trade is compulsory.

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During the year ending March, 1912, Persia exported to this country carpets and rugs to the value of $522,536 as against $425,524 the previous 12 months.

The Disinfection of Imported Rags

Unquestionably there are defects in the present tariff law which should be corrected. Some of these are already apparent, while others will doubtless be disclosed as the administration of the law proceeds. The correction of defects will, however, be delayed instead of being hastened, by reckless and unjustifiable attacks on its supposed provisions. A most inexcusable case of this kind was the recent complaint against not only the government regulations for the disinfection of imported rags, but also the admission without disinfection of foreign woolens made of rags and shoddy, both of which assumed shortcomings were charged to the new tariff law. As a matter of fact the quarantine regulations for the disinfecting of rags are issued under a special law approved Feb. 15, 1893, and which has now been in force over twenty-one years. The same regulations for disinfecting imported rags are in force now as under the Payne tariff. The necessity for preventing the introduction of contagious diseases into the country is beyond question, and it is well known that such diseases can easily be carried by rags. Moreover it is quite as well established that manufacturing rags into cloth is a most efficient method of disinfection, making it no more necessary to disinfect woolen cloth made of rags than it is to disinfect goods made of new wool.

Not only has the tariff law nothing to do with the present quarantine rules, but the criticism of the regulation for the disinfection of rags and non-disinfection of woolen goods is ridiculous in view of the danger from infection in one case and the absence of danger in the other. Conditions may arise sooner than is now generally expected under which it will be necessary for the textile trade to ask the Washington government for relief from either isolated or general defects in the tariff law. At such a time obtaining necessary relief will certainly be made difficult and may become impossible if a prejudice is created against the industry by such preposterous criticism as that to which we have referred.

The Treasury Department Correcting its Mistakes

As we pointed out in our November and December issues, two mistakes were made by the Treasury Department in decision 33823 relating to the average number of cotton cloth. One was the adoption of a regain of 7 per cent. for cotton yarn; the other was the rule that cotton cloth is to be conditioned for tariff purposes only when the number as found without conditioning falls within 4 per cent. of a dividing line in the step-ladder scale of Underwood rates. Both of these errors were quite evident. The world's standard for cotton regain is 8 1/2 per cent., and as a result the 7 per cent. allowance would operate to change the yarn number and in some cases the Underwood duty on cotton cloth.

The 4 per cent. limit was equally defective, because under the ordinary variations in atmospheric conditions it might easily happen that with this 4 per cent. rule in force the duty on one fabric would be lower than on another, although the average yarn number was higher. Furthermore a strict adherence to the 4 per cent. rule would prevent the detection of fraudulent dampening of cloth to reduce the duty by lowering the yarn number. On November 8, eight days after the decision was made, we wrote the Assistant Secretary of the Treasury, calling his attention to the mistakes he had made, and received the following reply dated November 25:

I have to acknowledge the receipt of your letter of the 8th instant inviting attention to what you consider errors in the Department's decision relating to the manner of ascertaining the average number of yarn in cotton cloth (T. D. 33823).

The percentage to be added back for regain was furnished to the Department by the Bureau of Standards after repeated tests by that Bureau. If it is found by experience that tests should be made when the weights vary from the dividing lines used in the table more than 4 per cent., the Department's regulations will be amended accordingly.

I thank you very much for the information you have given the Department, and will welcome any further suggestions that you may have to make to facilitate the administration of the cotton schedule.

Your letter has been referred to the Director, Bureau of Standards, for comment and suggestion.

On March 10 the Treasury Department corrected the error in regard to cotton regain in the following letter of instructions to the Collector at New York:

I have to invite your attention to T. D. 33823, prescribing an allowance for regain of 7 per cent. on cotton yarns and cloth after being dried to bone dryness.

The department is in receipt of a letter from the Director of the Bureau of Standards, from which it appears that after an extended investigation he is of the opinion that a regain of 8 1/2 per cent. should be allowed.

In view of this information, the paragraph at the head of table No. 1 T. D. 33823, is amended to read as follows:

"Whenever the weight is found within 4 per cent. of its given equivalent weight in the table, it will be necessary to make further trials of at least four samples; and if the average weight is again found to be within 4 per cent., the sample must be conditioned; that is, dried to bone dryness and a regain of 8 1/2 per cent. added."

In the letter of November 25 to us the Department virtually abandoned the 4 per cent. limit of variation, and the letter to the New York Collector orders a regain of 8 1/2 per cent. so that both mistakes may be considered as corrected.

There still remains, however, a defect in the method of calculation which the Department should remove. The Treasury decision 33823 defined the simplest method of calculation as follows:

The formula may be further simplified by weighing a square yard of said cloth and dividing the number of threads per square inch by 1/300 of the weight of a square yard in grains.

At the same time it gave the following awkward directions for calculating the average yarn number:

Multiply the count of threads per square inch by the number of square inches in the sample used, this product to be multiplied by 100; then divide the product thus obtained by the weight of the sample in grains multiplied by 432. The quotient will give the number of the yarn. For example, take a sample of cotton cloth 4 inches square, which equals 16 square inches, having 28 warp and 28 woof (filling) threads, a total of 56 threads to the square inch, and weighing 8.6 grains. The formula applied would be as follows: $(56 \times 16 \times 100) \div (8.6 \times 432) = 24$, the number of the yarn.

This laborious method is neither more nor less than a calculation of the grain weight of 1/300 square yard (4.32 sq. in.) from the weight of 16 square inches, an operation that is wholly unnecessary when a sample of 1/300th square yard (4.32 sq. in.) is used. The elimination of this awkward method of calculation from the custom houses has been made somewhat difficult by the fact that the Treasury Department had adopted and had printed for the use of custom officers an extensive set of reference tables based on the grain weight of 16 square inches of cloth.

These tables were not the outcome of careful investigation by the Treasury Department. They were compiled and copyrighted by J. L. Hollings, an employe of the Appraisers Department at New York before the Underwood tariff became a law, published a few weeks later by M. J. Corbett & Co., custom house brokers and forwarding agents at 24 State St., New York, and later adopted hurriedly by Assistant Secretary of the Treasury Hamlin in the hurly-burly incident to the initiation of a new administration and new polices at Washington.

As a result the collectors at the various ports use the 16-in. sample and are compelled to make the laborious calculations when they might otherwise save time and labor if their tables and calculations were based on the "straight line" method which calls for a sample of 1/300th square yard.

The Lindquist Bill

The Committee on Federal Relations of the Massachusetts Legislature, to which was referred the petition for a resolution requesting Congress to pass the Lindquist bill for labeling textiles, boots and shoes, has reported adversely, advising that leave be given to withdraw.

The raw cotton and cotton waste imported into the United Kingdom in 1912 amounted to 2,845,883,408 pounds, valued at $393,111,797, while the exports for the same period amounted to 426,740,263 pounds valued at $58,446,022.

The amount of raw cotton used by the cotton mills of the United States amounted to 2,335,344,906 pounds in 1909, valued at $274,724,210.

COTTON WAREHOUSES IN THE SOUTH

The warehousing of cotton is as old as the cotton growing industry itself, and the idea of establishing bonded warehouses on a large scale for cotton is also so old that it is probably impossible to trace its origin. The particular idea of establishing a chain of bonded, well-regulated and public warehouses throughout the American cotton belt where growers and others can store cotton, receiving negotiable certificates, is, however, comparatively new. So far as we recall the first man to formulate a comprehensive and detailed plan for such an enterprise was D. A. Tompkins, of Charlotte, N. C., who published his recommendations in 1904.

The Tompkins plan contemplated a system of warehousing cotton under which the warehouses would bear substantially the same relation to the cotton and its owners as banks of deposit now bear to money and the depositors. Since it was made public nearly ten years ago the Tompkins plan has lain dormant, except for the agitation by a minority faction of the New York Cotton Exchange in 1907 to reform that institution by basing its business on certificates of real cotton stored in the South. Last month the warehouse plan was revived by prominent Southern manufacturers and merchants at two meetings, the first at Greenville, S. C., which was attended by about one hundred manufacturers, the other one at Charlotte, N. C., both of which were called to consider a plan proposed by J. B. Duke, of the American Tobacco Company. Stuart W. Cramer, president of the American Cotton Manufacturers Association, presided at both meetings. W. S. Lee, vice-president of the Southern Public Utilities Company explained the Duke plan, the leading features being summarized as follows:

1. Utilize the cotton as collateral and do this always in the same way and so safeguarded that the integrity of this collateral would become very widely known and unquestionably accepted.

2. Have notes of an identical character against the cotton so as to create such a large volume of paper of one description that it will become a factor in the financial markets of the world.

3. Have all this collateral and paper passed through some well known financial institution that can in early stages give it standing and aid in establishing it in the market.

Resolutions endorsing the Duke plan were adopted at both meetings, but at Charlotte, the growers succeeded in getting the Greenville resolution amended to give them a larger representation on the committee of organization. The Charlotte resolutions are as follows:

Moved that those present at this meeting hereby heartily endorse the Duke Warehouse plan as explained, and that we further endorse the committee on organization appointed at the special meeting held in Charlotte when the matter was presented by Mr. Duke last Friday night, said committee consisting of the following:

Stuart W. Cramer, Charlotte, N. C.
J. W. Cannon, Concord, N. C.
D. Y. Cooper, Henderson, N. C.
C. E. Hutchison, Mt. Holly, N. C.
John A. Law, Spartanburg, S. C.
Lewis W. Parker, Greenville, S. C.
J. D. Hammett, Anderson, S. C.

Moved, further, that the committee on organization be increased by the addition of one farmer and one cotton merchant from each North and South Carolina, thereby increasing the number of the committee to eleven, including the chairman.

Moved, further, that we, farmers, merchants, and manufacturers, hereby tender our most hearty thanks to Mr. Duke for both his interest and activity in a matter so promising for the future welfare and best interests not only of his fellow citizens in the Carolinas, but of the whole South.

It is reported that the National City Bank, of New York, has approved of the Duke warehouse plan and would handle the warehouse certificates. It is also announced that the plan of J. B. Duke is to form a warehouse company with $5,000,000 capital stock, which shall be divided into common and preferred. About $4,000,000 of this amount is to be used in building warehouses at centrally located points and in purchasing warehouses now owned by cotton mills and warehouse companies. The other $1,000,000 is to be invested in State and municipal bonds, and to be held as liquid assets in order to make easier the financing of the cotton.

THE WOOL GOODS MARKET

New York, Mar. 28, 1914.

The initial order business on woolens and worsteds for the coming fall and winter season is practically at an end. A good business has been done on both men's and women's wear, with many fabrics well sold, and a number of mills running extra time, a part or all of their machinery. There are a great many mills, probably a majority, not so well sold up, but many of them with sample lots well distributed on which they can depend for a duplicate business to help out the season.

The tailor to the trade buyers are always the last to place their orders and they are now being received and in good sized quantities. That trade is of vital importance to some mills which have not sold freely enough, on certain of their fabrics, to warrant their placing the goods in process. In such cases a great deal will depend upon how much business they get on those fabrics from that trade. This will be the deciding factor as to whether a number of fabrics shall be made.

It is more than likely that some fabrics will be withdrawn from sale and the few orders for them cancelled. That will bring some additional business to similar lines that have been more successful in securing a sufficient number of orders.

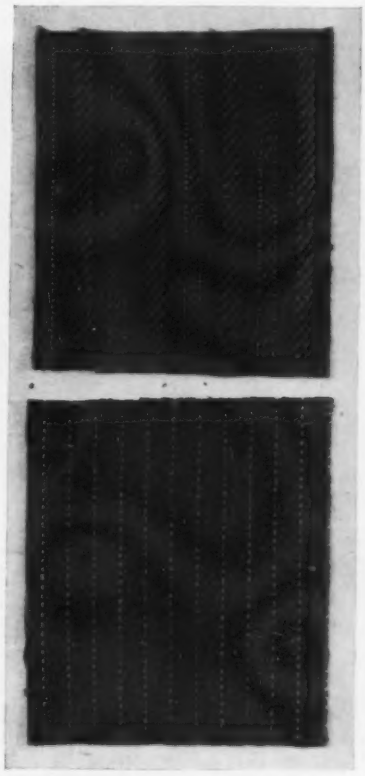
The market has gone wild on any fabric that can be used in a Balmacaan coat, either for men's or women's wear. There is a great scarcity of such goods and many clothiers cannot get sufficient goods to make half the garments they have sold. Fabrics running from 25 cents up to $1.35 and higher are used for these coats and in weights from twelve to twenty-four ounces.

It is reported that there are more foreign made Balmacaan goods coming in than on any other fabric, unless it should be serges, of which many thousand pieces were sold here.

On the whole there is much disappointment among foreign selling agents and very many lines have not met with any success. Although the foreign goods sold here foot up to a great many thousand pieces, many or most of them are widely distributed among a great many mills in small quantities. That makes it undesirable business for such mills. The foreign styling has not been a success here, they lack the bright, snappy effects which are required for this country. Where successes have been scored the styling has been done here or directed from here.

The importations of woolens and worsteds show increases of several hundred per cent. over those of a year ago and when the goods ordered in quantity come in a still further increase will be shown. In former years, under an almost prohibitive tariff, it has been a hard struggle for many mills to meet domestic competition and secure enough business to keep them under full production. Under the lower tariff the large increase in

FIG. 2



NO 3. TWO ALL COTTON STRIPES

importations of all kinds of woolens take from domestic mills just so much work that is very much needed here.

The worldwide scarcity of wool has caused continued advances in wool prices, consequently many fabrics have been advanced from five to ten cents per yard and general advances on all fabrics are imperative and will have to be made shortly.

An effort is being made to sell domestic made clothing abroad which, if successful, will be a boon to our woolen interests. It in reported that some success has been met with, but it is too early to know much about the final results. Not much has been heard of the attempts to sell piece goods abroad and it is not likely to amount to much.

At present buyers are demanding their sample pieces or short ends for sample garments and the mills are doing their utmost to get them out in time. Many orders are lost by the non-delivery of sample pieces on time, which means the loss of so many chances for duplicate orders, which are essential in selling the production of a mill. The foreign manufacturers are having much trouble on sample pieces of fancy styles and some are already a month overdue. This may cause them the loss of considerable business.

During the month a good business has been done on fancy worsteds with some prominent lines selling freely, while many others have done fairly well. The styles sought for have turned from stripes, which have had an unusually long run, to small checks, with some plaids in demand. There have been a good many so-called narrow pencil stripes sold for certain trades, in several fabrics.

Carded wool suitings have not done so well except in a few rare exceptions. Such mills have done their business on balmacaans, mackinaws and chinchillas, which have had a free sale.

There has been a large increase in sales by foreign mills on fine goods for the jobbing and tailoring trades, which was to be expected.

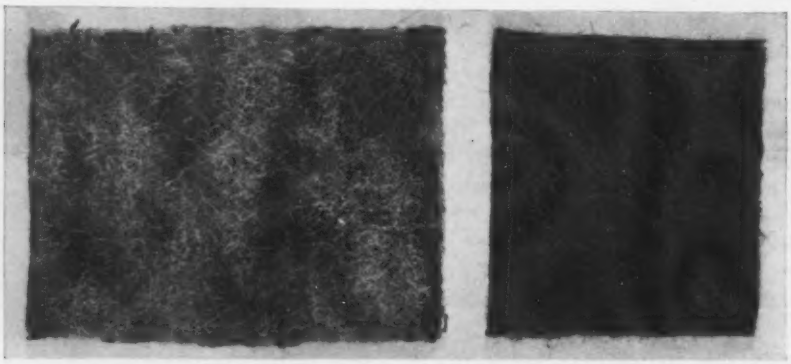


FIG. 4 FIG. 5

IMPORTED FANCY CLOAKINGS

Two imported all cotton worsteds, Nos. 2 and 3, have sold freely at 36 1/2 and 45 cents net, duty included. They may seem out of place in a report of the wool goods market, but they are used entirely for clothing, in suits and trousers, and will displace just so many goods that have been made here, as none have been imported until now, for a number of years.

The cold March weather started up the retail overcoat trade to some extent and relieved the retailers of considerable stock. The wholesale trade, however, did not benefit by it, as the retailers wisely did not replenish their stocks. The sale of stock coats has placed the retailers in a better condition financially for the purchase of fall and winter clothing.

There has been an unusually large busi-

ness done on worsted dress goods fabrics, with piece dyed goods very largely in the lead; serges, gabardines and crepes have had an immense sale and the leading makes are well sold up for the season. There has also been a good demand for novelty styles and fabrics in worsted fabrics with a number of lines well distributed on initial orders.

Carded wool fabrics for ladies' wear have been in better demand than usual for coatings and broadcloth. This last mentioned fabric is probably the best selling fabric for women's wear and large orders have been placed in various grades. They are having the best sale they have had for several years.

Manufacturers of coats for women's wear have bought largely of tweed and other fabrics which are made for men's wear and are using them for women's coats. It is generally conceded that prices for all textile fabrics are not such as to bring satisfactory financial results to the manufacturers. Prices have been very low and the advances made have been only sufficient to cover the advance cost for raw materials.

Selling agents are now devoting their attention to getting out new fabrics and styles for the spring season of 1915 and the sample work is well under way with many mills which appreciate the great importance of having their samples on the market as early as possible. There are always a good many that are late with their sample work and do not realize the disadvantage of being late in the procession with their samples on the market.

The analysis of five samples of imported goods accompanying this report resulted as follows:

1. Cotton warp cheviot, 15 ozs., 54 in., 28 1/2 cents net. Warp, 42 ends 21s cotton. Filling, 30 picks 1 1/4 runs. Actual weight, 14.8 ozs., 54 in.
2. All cotton stripe, 13 ozs., 56 in., 36 1/2 cents net. Warp, 67 ends 14s cotton. Filling, 53 picks 8s cotton. Actual weight, 12 ozs., 56 in.
3. All cotton stripe, 14 ozs., 56 in., 45 cents net. Warp, 119 ends 16s cotton. Filling, 54 picks 11s cotton. Actual weight, 13 ozs., 56 in.
4. Fancy cloaking, 21 ozs., 54 in., $1.30 net. Warp, 11 ends dressed, 1 fancy twist composed of 2 ends 2/16s cotton and 1 end of 1 run woolen 1 end 2/16s cotton. Filling, 18 picks, dressed 1 and 1 same as warp. Actual weight, 20 ozs., 54 in.
5. Fancy cloaking, 23 1/2 ozs., 54 in., $2.15 regular. Warp, 31 ends, twist composed of 1 end 60s cotton and 1 end of 4 1/2s single worsted Filling, 29 picks twist same as in warp. Actual weight, 21 ozs., 54 in.

ENGLISH ADVICE TO AMERICAN BUYERS OF ENGLISH WOOL GOODS

London, Mar. 25, 1914.

Perhaps you will not mind a few timely hints from an old hand, who knows the ropes of the London showing pretty well.

If you will read what I have to say, you may be able to save some valuable time, and money too; and if your reputed business acumen is a fact, it will prompt you to take what advantage you can from gratuitous advice.

First, arrange your appointments before you come over, so far as you are able. Write to all the leading manufacturers whom you wish to see and fix up an appointment with them. They will reply saying whether the day and the hour will suit them, and give you alternate dates if yours are not convenient. This will enable you to start your buying as soon as you arrive in London, without having to waste your time in going round and fixing up with the men you really want to see. You will get plenty to call at your office to see you, and you should endeavor to see everybody if you can, at any rate for the first time. The men you are most anxious to see are the men who have the most appointments; unless you get them early you may stroll round to their offices innumerable times before you catch them. Every manufacturer or agent likes to get his appointments on paper, so that he may be ready for the buyer when he comes, and may have all his ranges to show promptly and in order. If you go in on the hop, the agent may just be going out to keep an appointmnt, or he may be in the middle of showing, or may have just come in. In any case he would not be prepared for you, and could not do himself justice and you may get wrong impressions of him. Give the manufacturer or agent a chance.

When you have filled up your appointment card, and have called on the firms you think you want to buy from, then have a look at some of the smaller fry. Don't

despise these because they are smaller than some of the firms with big reputations. You sometimes have to pay a good deal more for an identical article from a firm with a high sounding name than you do from a less prominent firm. You want the best value, and if you are possessed with the necessary judgment for a buyer, you can at once see where it is to your advantage to place your orders. Some of your countrymen are obsessed with the big firms and with the names they bear. There are many merchanting firms in the country who make a lot of profit, and they find that they can often save money by buying certain articles from the small firms. Quality for quality, style for style, the small man is sometimes well in the running. It is not always so, but it is just here where the broadminded buyer scores over his more conservative competitor. The man who sees only a few manufacturers is only half-educated in the business of buying. The man who sees all he can gets to know where he can save money without in any way lowering his standards. Manufacturers and agents soon get to know who are the buyers and who are the automatons, and the latter sometimes have to pay for their lack of experience. You will increase your value as a buyer as well as save your money if you take pains to see what is offered to you.

Then again, don't select a lot of ranges you never mean to order. Let your original selection be as small as you possibly can, and your esteem as a selector will go up and not down. It is when buyers select a lot of ranges and only order a few that they are not so eagerly sought after as the man who selects sparingly and orders well from what he has selected. Don't keep ranges from manufacturers longer than you can help. The sooner you can get your orders out and the rejected ranges sent back the better. Manufacturers are not so eager to show first to the man who keeps his ranges hanging about too long. He wants to show them to someone else, and the prompt man gets the best pick.

For this reason it will serve your purpose best to do your looking in sections. Take say the Scotch tweed manufacturers first, then the fancy worsteds, then the plain goods, then the coatings; or some such plan. You will then be able to keep your office free from accumulations of ranges, and manufacturers will be thankful.

Don't overdo the hustling. You must take your time to do business properly. One of the most successful German houses takes about eight weeks to do his buying here every season. He does it thoroughly, and fixes up everything before he goes back. Some get through or rather muddle through it in ten days.

Don't boast of what orders you are going to lay down. Put down your orders and the manufacturer will do the talking about it. Your reputation will soon go up if you say little and order well. If you talk a lot and don't order you will see manufacturers disappear in their offices when you walk round Golden Square. Cockney.

DISTINGUISHING WOOL AND SHODDY

East Orange, N. J.,
March 21, 1914.

Editor Textile World Record:

I have read with much interest the two articles appearing in the March issue of the Textile World Record, entitled respectively: "Misrepresentation and Fraud in the Sale of Goods," and "Distinguishing Wool and Shoddy," and cannot refrain from extending to you my congratulations upon the stand you have taken in the matter.

After many years' continuous experience in the testing of woolen fabrics of all kinds and for every imaginable purpose, I am free to confess that there does not exist today a laboratory method—chemical, microscopical, or both combined, that will enable anyone skilled in the details of textile-chemical work to identify regenerated wool (not artificial wool, as our German friends are pleased to designate it) in the presence of so-called pure wool, or wool that has never before been used, when made into yarns or fabrics.

It is quite true that details of some methods have been published from time to time, dealing with this problem, but it is also true that the writers of such methods have not taken time or gone to the trouble of trying them out for the purpose of testing their relative accuracy.

It is also a fact not generally known to the non-textile chemist who occasionally dabbles in textile chemical work, that there are no distinct "characteristics" of shoddy or mungo that cannot be found upon absolutely new wool fibers; who seem not to know that there exists no line of demarcation between wool and shoddy wool. Formerly it was the usual custom for chemists who were examining woolen cloth for the purpose of detecting the possible presence of "shoddy" to regard as "shoddy" every fiber present that when

viewed under the microscope appeared as of a different color from the remainder of the fibers, but in total ignorance of the fact that the dyer of raw wool is frequently confronted with an uneven coloring of the tips of the wool fibers, the tips very often remaining quite undyed. It is needless to remark that the presence of such undyed portions is very likely to lead an uninformed observer quite astray.

On the other hand, the art of making regenerated wool is today, not what is was years ago when Prof. Von Hoehnel's work was published in 1887 (a copy of which is before me as I write). Making regenerated wools has so far advanced that the commercial product has no chance of being compared with the product on the market during 1887. Yarns made of the present day shoddies of goods grades cannot be distinguished from many grades of yarns known to consist only of new wool, and where shoddy is used in connection with new wool in the same thread, the problem of detection is hopeless. No chemist or microscopist can with safety prove or disprove before a court of law that a given sample of woolen cloth consists wholly or in part of regenerated wool, any more than he could testify that a given sample of wool came from a certain geographical locality, for the reason that no tests exist that are conclusive.

At one time, prior to the general introduction of the modern method of stripping rags, there was a possibility of detecting admixed colored fibers, but since stripping is done so perfectly at the present time, and without any destructive action upon the fibers, this apparently ready means of isolating "artificial wool" fibers no longer exists.

It was the hope, on the other hand, that as rags were mostly carbonized with sulphuric acid, to use the results of this process as a means of detecting "carbonized" fibers in cloth. It was believed that this process altered the condition of the scales on the surface of the wool, but even this test failed when pieces of high grade cloth made from absolutely new wool, but which had been carbonized to remove isolated vegetable mots and threads, showed the same "characteristics" that our commonplace "shoddy" possessed.

I am very glad that you have embraced the present opportunity of attacking this important subject, and giving prominence to the "shoddy" identification feature, which, unless exploded at the outset is likely to lead to serious misconceptions on the part of the public, if not to non-technical framers of legislative bills.

I cannot understand the attitude of the Bureau of Chemistry at Washington, in citing the reference quoted on page 57. Notwithstanding the apparently high standing of Mr. Herzfeld, there is every reason why too much credence should not be placed in the methods detailed in his work on "Technical Testing of Yarns and Textile Fabrics," some of which, I have reason to believe, he is not in a position personally to vouch for. Many textile books of German so-called "authorities" are filled with methods of doubtful utility, and it is to be seriously regretted that our Bureau of Chemistry has depended upon such a weak staff in so important a matter as advising regarding "artificial wool."

Please pardon me for taking so much of your time, but you will appreciate that the subject of shoddy is very near to me, one of my pets.

Yours very truly,

Louis J. Matos.

New York, March 17, 1914.

Editor Textile World Record:

I have been following with much interest the progress of the Lindquist "pure fabric" bill and I have read carefully your article in the last number of the Textile World Record. As an extension of your own remarks on this question, and which I may state at the outset I thoroughly agree with, I would like to present you certain data, especially with reference to the work of Hoehnel and others on the possibility and difficulties of distinguishing pure wool and shoddy. In this connection I would say that I am very much surprised at the apparent ignorance of R. L. Emerson, Assistant Chief of the Bureau of Chemistry, regarding the matter, as, if such a bill is passed by Congress, it would naturally be the duty of the Bureau of Chemistry to determine the question of adulteration with shoddy.

At the outset I would like first to refer you to the discussion I have given this matter in my own book on Textile Fibres, 3rd edition, 1913. In a summary of the examination of shoddy I have stated in substance the following:

> "It is often impossible to determine by chemical or physical examination if a sample of woven cloth contains shoddy or pure fleece wool only. There are many forms of shoddy which are composed of wool fibres of excellent quality; such for instance, as the shoddy obtained from knit goods or from tailors' clippings of loosely woven fabrics. It is possible, in fact, to have a fabric composed entirely of shoddy to exhibit a better quality of fibre on examination than a fabric which may be composed of pure though inferior fleece wool. It must also be borne in mind that when a fabric is unravelled and teased apart so that an examination of the fibres may be made, the fibres so obtained in reality constitute a form of shoddy having been previously subjected to the various operations of manufacture: whereas it may be quite possible to definitely decide whether a sample of loose wool or even yarn, contains shoddy or not, in many cases it would be an analysis or examination of the latter. After all, the question as to the use of shoddy in woolen fabrics resolves itself into a question as to the quality of the fibre irrespective of the fact as to whether the fibre was derived first hand from the fleece or from some other source of manufactured material."

In this same connection regarding the examination and distinguishing of shoddy, I would also like to call your attention to the work done by Dr. T. F. Hanausek, Analysist of the Government

Pure Food Laboratory at Vienna and author of the well-known and authoritative book on the Microscopy of Technical Products. Dr. Hanausek states as follows:

> "From what has been stated, it is evident that the detection of shoddy in yarn or fabrics is a very difficult thing and under some conditions an impossible undertaking."

Now referring to Hoehnel directly, I give extracts from the book on the microscopical examination of commercial fibres, the translation herewith given being my own:

> "Every fibre cannot be definitely recognized as being shoddy or not and a single characteristic does not suffice to distinguish shoddy in a sample, but only a comparison of several characteristics will lead to a proper opinion. Since the wool through a single fleece exhibits wide variation, pure wools may be spun together which show considerable difference in fibre and though variations in thickness of fibre may determine the value of a fabric, it cannot be accepted as any sure indication of the presence of shoddy. . . . The quantitative estimation of shoddy can only be carried out by actual counting and microscopic measurements. All the fibres in a single yarn which are recognized as shoddy must be counted and the ratio between them and the remainder must be calculated. In general the numbers obtained in this manner are somewhat smaller than the truth, because many shoddy fibres cannot be distinguished from true fleece wools. The large number of fibres which occur in a sample is also an obstacle in the way of an accurate quantitative determination. A sample of cloth of medium thickness and 2 to 3 cm. square, will contain from 30,000 to 50,000 single fibres; smaller samples which would contain a less number of fibres would not afford a certainty of containing an average mixture of the fibres to be tested."

From these extracts from the best authorities on the subject, you can readily formulate an opinion that the exact determination as to whether a sample of goods contains shoddy or not, is a practical impossibility. While there may be many cases in which it would be a comparatively easy matter for a skilled mocroscopist and textile chemist to determine the presence of shoddy or not, there would also be possibly an equal large number of cases in which, however skilful the examiner, a positive opinion on the question of shoddy could not be reached. I trust that these few remarks may be of service to you in some way in your very logical and sensible stand against the passage of such an impracticable bill as proposed by Mr. Lindquist.

Very truly yours,

J. M. Matthews.

THE NATIONAL ASSOCIATION OF HOSIERY AND UNDERWEAR MANUFACTURERS

As announced last month the exhibition of the National Association of Hosiery and Underwear Manufacturers will be held in the First Regiment Armory, Philadelphia, May 11 to 15. The success of the show is indicated by the fact that already the space in the Armory has been engaged by prospective exhibitors. The list is as follows:

Aberfoyle Manufacturing Co. ..... Chester, Pa.
Acme Knitting Machine & Needle Company Franklin, N. H.
Acme Staple Company ..... Camden, N. J.
Ainslie Knitting Machine Co., .. Brooklyn, N. Y.
American Laundry Machinery Co. Rochester, N. Y.
American Wool and Cotton Reporter Boston, Mass.
Ames, A. N., Knitting Machine Co. Franklin, N. H.
Andreykovicz & Dunk ..... Philadelphia
Beattie Manufacturing Co. ..... Cohoes, N. Y.
Beck, Charles, Company, Ltd. ..... Philadelphia
Beckert Needle & Supply Co. ..... Philadelphia
Bell Telephone Co. ..... Philadelphia
Berlin Aniline Works ..... New York City
Blythe, Richard A., Inc. ..... Philadelphia
Bond, Charles, Company ..... Philadelphia
Brinton, H., Company ..... Philadelphia
Clipper Belt Lacer Co. .... Grand Rapids, Mich.
Continental Latch Needle Co. ... New York City
Cooper, Estate of Charles ..... Bennington, Vt.
Cotton Publishing Company ..... Atlanta, Ga.
Croll, Albert Ivins ..... Philadelphia
Decker, George C. ..... Philadelphia
Eastman Machine Company ..... Buffalo, N. Y.
Emerson Apparatus Co. ..... Boston, Mass.
Enterprise Mill Soap Works ..... Philadelphia
Fibre and Fabric ..... Boston, Mass.
Firsching, J. A. ..... Utica, N. Y.
Ford, J. B., Company ..... Wyandotte, Mich.
General Electric Company ... Schenectady, N. Y.
Grand Rapids Textile Machinery Company Grand Rapids, Mich.
Grosser Kniting Machine Co. ... New York City
Hardenbrook, C. E., Company ..... Philadelphia
Harding & Fancourt, Inc. ..... Philadelphia
Hemphill Manufacturing Co. .. Pawtucket, R. I.
Hepworth, John W. & Co. ..... Philadelphia
Ideal Stencil Machine Co. ..... Belleville, Ill.
James, H. A. & Co. ..... New York
Jenckes Knitting Machine Co., Pawtucket, R. I.
Jones & Hardy ..... Hudson, N. Y.
Kaumagraph Company ..... New York City
Klauder-Weldon Dyeing Machine Co. Amsterdam, N. Y.
Knit Goods ..... New York City
Lane, W. T. & Bro. ..... Poughkeepsie, N. Y.
Lehigh Valley Silk Mills .. South Bethlehem, Pa.
McConnell & Co., Ltd. (Philadelphia), Manchester, Eng.
Merrow Machine Company ..... Hartford, Conn.

Metropolitan Sewing Machine Co., Nyack, N. Y.
Meyers Bros. ..... New York City
National Association of Hosiery & Underwear Manufacturers ..... Philadelphia
New York Revolving Portable Elevator Co. Jersey City, N. J.
Newton, Edwin A. ..... Philadelphia
Nicetown Dye Works ..... Philadelphia
Nonotuck Silk Company ..... Philadelphia
Palmer Bros. ..... Greenwich, N. Y.
Paramount Metal Form Drying Co. Beaver Dam, Wis.
Parks, G. M., Co. ..... Fitchburg, Mass.
Paxton & O'Neill ..... Philadelphia
Peech Sons and Philips Co. ..... Camden, N. J.
Philadelphia Drying Machinery Co., Philadelphia
Philadelphia Textile Machinery Co., Philadelphia
Pigeon Machine Co. ..... Norristown, Pa.
Porter, T. J. & Sons ..... Philadelphia
Roessler & Hasslacher Chemical Co. New York City
Rose Label Machine Co., The, Grand Rapids, Mich.
Salvage, S. A. & Co. ..... New York City
Sauquoit Spinning Co. ..... Capron, N. Y.
Schaum & Uhlinger, Inc. ..... Philadelphia
Scott & Williams, Inc. ..... Boston, Mass.
Shoemaker, J. L. & Co. ..... Philadelphia
Smith, Drum & Co. ..... Philadelphia
Spindler, E. O. ..... New York City
Standard Machine Co. ..... Philadelphia
Straus, F. A. & Co. ..... New York City
Suter, Alfred ..... New York City
Textile American ..... Boston, Mass.
Textile Manufacturers' Journal .. New York City
Textile World Record ..... Boston, Mass.
Tolhurst Machine Works ..... Troy, N. Y.
Uniform Dye Mch. Co. ..... Philadelphia
Union Special Machine Company .. Philadelphia
Universal Winding Company ..... Boston, Mass.
U. S. Hoffman Co. ..... Syracuse, N. Y.
Weinerth Knitting and Machine Co., Inc. Reading, Pa.
Wholefast Hosiery Stamp Co. ..... Philadelphia
Wolstenholme, Thomas, Sons Co. .. Philadelphia
Wildman Manufacturing Co. ... Norristown, Pa.
Ziegler, Walter R. ..... Riverside, N. J.
Zurn, O. F., Company ..... Philadelphia

THE NATIONAL ASSOCIATION OF COTTON MANUFACTURERS

Secretary Woodbury has issued the following notice of the papers to be read at the April meeting of the Association:

Cost of the Permanent Fireproofing of Cotton Goods.
Economy in Handling Material in Cotton Mills.
Effect of Structure on the Strength and Wearing Qualities of Fabrics.
Efficiency and Cost of Doing Business.
Electric Power Contracts.
Export Side of the Textile Industry.
Financing Cotton Mills in the United States.
Improved Methods in the Handling and Dyeing of Raw Cotton, Yarn and Piece Goods.
Methods of Reducing the Fire Hazards of Cotton Conveyors.
Mill Steam Plant.
New Cotton Type Standards.
Opportunities for African Commerce in American Cotton Textiles.
Prevention of Decay in Mill Timbers.
Recent Developments in Incandescent Lamps and their Application to Cotton Mill Lighting.
Systematic Supervision in Dyeing and Bleaching.
Uses of Compressed Air in Cotton Mills.
Why Does the Federal Government Take a Census of Cotton Manufactures for 1914?

The list of authors is as follows:

His Excellency, David I. Walsh, Governor, Boston, Mass.
Hon. John F. Fitzgerald, Boston, Mass.
Ralph M. Odell, Department of Commerce, Washington, D. C.
William M. Steuart, Bureau of the Census, Washington, D. C.
Prof. William Henry Perkin, Oxford, Eng.
Charles C. Phelps, New York City.
Prof. William L. Puffer, Boston, Mass.
G. H. Stickney, Harrison, N. J.
E. Howard Bennett, Boston, Mass.
H. A. Burnham, Boston, Mass.
Edward K. Cone, New York City.
Andrew Fisher, Boston, Mass.
Edwin Farnham Greene, Boston, Mass.
A. G. Hosmer, Utica, N. Y.
F. J. Hoxie, Boston, Mass.
William F. Hunt, New York City.
John S. Lawrence, Boston, Mass.
Louis J. Matos, New York City.
William Myers, Cheshire, Eng.

IDLE MACHINES IN THE WOOLEN AND WORSTED TRADE

Following is the second report of idle machinery in the woolen and worsted trade, issued by the National Association of Wool Manufacturers:

Boston, Mass., March 27, 1914.

Dear Sir:—Below is a summary of the results of our inquiry as to the machinery active and idle on March 2, 1914, in the woolen mills of the United States.

A majority of all the mills have responded, and the replies represent a very great majority of all the woolen machinery of the country. Some mills in answering have given, not the number of looms, spindles, etc., asked for, but the per cent. of their machinery idle or active. These, of course, could not be included in the returns. All machines that are operated night and day with a double shift are counted as two machines.

On June 1 another inquiry will be made—the results, as in this instance, being published for

the information of all those interested directly or indirectly in the industry.

Sincerely yours,
Winthrop L. Marvin,
Secretary.

	Total Number Reported	Per Cent. of Idle to Total Mar. 2, 1914	Dec. 1, 1913
Looms wider than 50 inches reed space ..	40,105	24.8	24.9
Looms, 50 inches reed space, or less	12,099	17.7	27.2
Looms, Carpet	2,996	24.5	32.1
Woolen Cards, Sets	3,156	19.5	21.4
Worsted Combs	1,691	13.	23.1
Woolen Spinning Spindles 1,032,447		22.2	22.7
Worsted Spinning Spindles 1,540,808		22.	26.

THE TEXTILE EXHIBITION

From every textile section of the United States where there are textile interests, there seems to be genuine enthusiasm for the fourth national textile exhibition, which is to take place in Mechanics Building, Boston, on April 27th to May 2nd. A number of the associations within the industry are making plans to hold meetings in connection with the exhibition.

The American Cotton Manufacturers' Association has changed the date of its annual meeting so as to meet the wishes of many of its members who wish to attend the Exhibition in Boston. The meeting will now be held on Monday and Tuesday, April 27th and 28th, at the Waldorf-Astoria Hotel in New York City and a very large proportion of those in attendance will come to Boston for the remaining days of the week.

The National Association of Cotton Manufacturers holds its annual meeting in Boston on Wednesday and Thursday, April 29th and 30th, and will welcome at its meetings the members of the American Association who come over to Boston for the Exhibition.

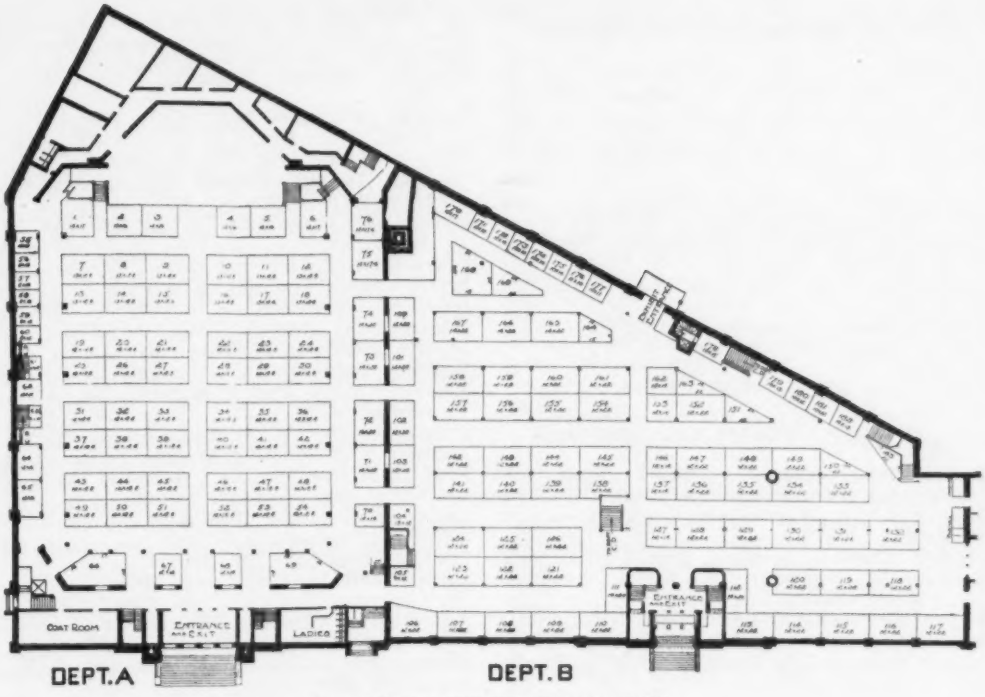
The Southern Textile Association is planning to come to Boston in a body. Just now Secretary David Clark at Charlotte, N. C. is making an effort to induce several hundred of the members to join in an excursion to the exhibition. The Southern Textile Association has definitely decided to attend in a body. C. B. Bryant, secretary of the American Cotton Manufacturers' Association, whose address is Charlotte, N. C., is endeavoring to get as many members of his association as possible to make the excursion with the Southern Textile Association.

The popularity of the Textile Machinery Exhibition is shown by the accompanying list of exhibitors, which has expanded to such an extent, both in number and space required that it has been necessary to occupy the main hall in Mechanics Building for this year's exhibition.

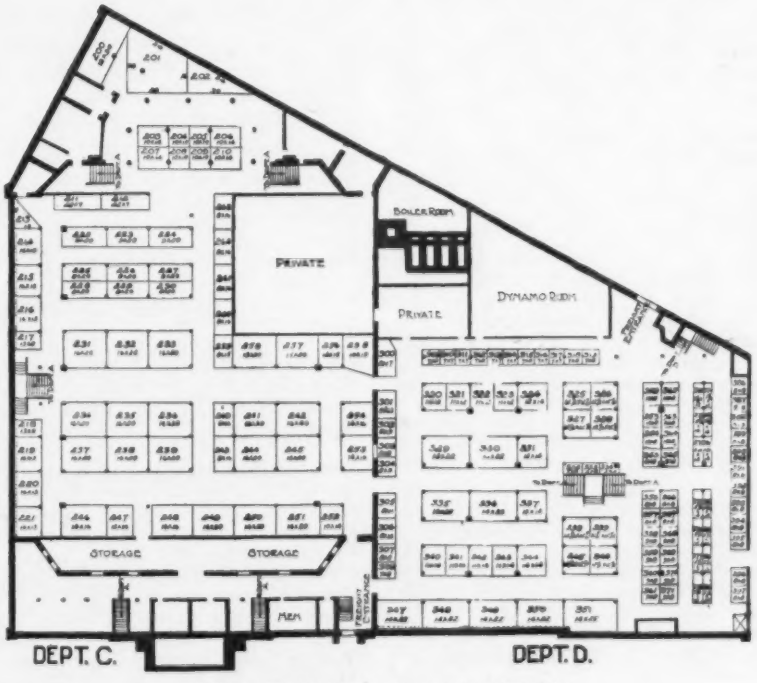
There will be on exhibition most of the devices and machines incorporating the many improvements that have been made in the industry during the past few years.

The numbers on the accompanying chart correspond with those in the list, enabling one to locate any exhibit in the halls. The space is all taken so that the chart and list show the exhibits as they will be found when the doors open on April 29th.

	Space No.
Ainslie Knitting Machine Co., Brooklyn, N. Y.	65
Albany Lubricating Co., New York	391
American Enameled Brick & Tile Co., New York	218
American Kron Scale Co., New York	2
American Moistening Co., Boston	9 & 15
American Oil Company, Providence, R. I.	308
American Power Co., Boston	328
Ames, B. L., Boston	324
American Steam Gauge & Valve Mfg. Co., Boston	327
American Tool & Machine Co., Boston	21-27
American Warp Drawing Machine Co., Boston	146-148 incl.
American Wool & Cotton Reporter, Boston	40
Anderson, George P., Boston	311
Anderson Company, V. D., Boston	352
Arlington Machine Works, Arlington Heights, Mass.	127-128
Ashton Valve Company, The, Boston	337
Ashworth Bros., Inc., Fall River, Mass.	31
Atwood & Morrill, Salem, Mass.	359
Autoforce Ventilating System, Boston	316
Autogenous Welding & Equipment Co., Springfield, Mass.	319
Austin & Doten, Messrs., Boston	342
Barber-Colman Company, Rockford, Ill.,	45 & 51
Birch Brothers, Somerville, Mass.	172-174 incl.
Blanchard, J. Henry, Boston	309
Borne, Scrymser Company, Boston	75-76b
Boston Belting Company, Roxbury	178
Bowser & Co., Inc., S. F., Fort Wayne, Ind.,	103
Bragdon & Co., J. H., Boston	71-72
Brown Spin Wright Co., New York	7 & 8
Buckeye Engine Company, Salem, O.	333
Buhlmann, A. W., New York	6
Butterworth & Son Co., H. W., Phila., Pa.,	102



PLAN SHOWING EXHIBITS ON MAIN FLOOR



PLAN SHOWING EXHIBITS IN THE BASEMENT

Byers Company, A. M., Boston 392
Carrier Air Conditioning Co. of America, New York 47
Cell Drier Machine Co., Taunton, Mass. 46
Chapman Valve Mfg. Co., The, Boston 346
Chesterton Co., A. W., Boston 358
Clark Thread Co., The, Newark, N. J. 13-14
Clemson Agricultural College, Clemson College, S. C. 205-6-7
Climax Smoke Preventer Co., Boston 324
Cling Surface Company, Buffalo, N. Y. 101
Coppus Engineering & Equipment Co., Worcester, Mass. 355
Cordtmeyer, F. H., Woodside, Long Island, N. Y. 562
Cotton Publishing Company, Atlanta, Ga. 1
Cramer, Stuart W., Charlotte, N. C., and Boston 32
Crompton & Knowles Loom Works, Worcester, Mass. ..... 121-126 incl.
Curtis & Marble Machine Co., Worcester, Mass. 74
Cave Welding Company, Springfield, Mass., 319
Courtney Co., Dana S., Chicopee, Mass. 34
Davis & Furber Machine Co., No. Andover, Mass. ..... 33 & 39
Dearborn Chemical Company, Boston 332
Diamond Power Specialty Co., Boston 314
Dodge Manufacturing Co., Boston 131
Draper Company, Hopedale, Mass. .. 138-145 incl.
Dubied Machinery Company, New York 67
Durabla Manufacturing Co., New York 388
Duren & Company, Boston 560
Eagle Oil & Supply Co., Boston 305
Easton & Burnham Machine Co., Pawtucket, R. I. 157-158
Edward Manufacturing Co., The, Boston 331
Emerson Apparatus Co., Boston 57
Enterprise Rubber Company, Boston .. 133 & 150
Entwistle Co., T. C., Lowell, Mass. 157
Evans Mill Supply Co., Boston 361
Fairbanks Company, The, Boston ..... 4 & 5
Fales & Jenks Machine Co., Pawtucket, R. I. 159-160
Federal Metallic Company, Boston 365
Fibre & Fabric, Boston 42
Firth, William, Boston 16
Ford Company, The J. B., Wyandotte, Mich., 35
Foster Machine Company, Westfield, Mass., 149
Foster & Sons Co., F. W., Boston 366
Franklin Process Company, Providence, R. I., 3
Falk Co., The, New York 393
Gardner Grate Company, Roxbury, Mass. 334
Garlock Packing Company, Boston 318
General Electric Company, Schenectady, N. Y. ..... 48 & 54
Gessner, David, Worcester, Mass. ..... 19 & 25
Giles Dyeing Machine Co., John H., Amsterdam, N. Y. 176-177
Gowing, Frederick H., Boston 514
Grosser Knitting Machine Co., New York, 17-18
Griscom Russell Co., The, Boston 360
Harrington Mfg. Co., Roxbury, Mass. 379
Haines & Co., Wm. S., Boston 341
Harrison Safety Boiler Works, Boston 343
Hess-Bright Mfg. Co., Phila., Pa. ... 179-181 incl.
Hetherington & Sons, Ltd., John, Boston, 151 & 152
Ingersoll Rand Company, New York 52-53
Hill Publishing Co., New York 313
Hinds & Coon, Boston 63
Hinsdill Electric Company, Troy, N. Y. 534
Holyoke Machine Company, Worcester, Mass. 132
Howard Brothers Mfg. Co., Worcester, Mass. ..... 49 & 50
Huile Company, The, Mechanicsville, Conn., 58
Hussong Dyeing Machine Co., Groveville, N. J. 220
Hyland Mfg. Company, W. J., Springfield, Mass. 357
International Engineering Works, Boston ... 325
Ingersoll Rand Company, New York 52-53
Jefferson Union Company, Lexington, Mass., 374
Jenkins Bros., Boston 329
Jones & Hardy, Inc., Hudson, N. Y. 175
Keystone Lubricating Co., Boston 315
Klauder-Weldon Dyeing Machine Co., Amsterdam, N. Y. ..... 10 & 11
Lane & Brother, W. T., Poughkeepsie, N. Y., 68
Lagonda Mfg. Company, Boston 354
Lead Lined Iron Pipe Co., Wakefield, Mass., 345
Leatheroid Mfg. Company, Boston 66a
Leyland & Co., Thos., Boston 43
Little, Inc., Arthur D., Boston 312
Lord & Nagle Company, Boston 73
Lowell Textile School, Lowell, Mass. 240-1-2 & 247-8-9
Lunkenheimer Company, The, Boston 340
Lyon Manufacturing Co., Fitchburg, Mass. ... 37
Macrodi Fibre Company, Woonsocket, R. I., 34
Mason Machine Works, Taunton, Mass. 112-115 incl.
Mason Regulator Company, Boston 320
Massachusetts Fan Company, Watertown, Mass. 323
McClave-Brooks Company, New York 310
McLeod & Henry Company, Troy, N. Y. ... 307
Meyers Brothers, New York 533
Mill Employment Agency, Boston 558
Monarch Steam Blower Co., Boston 324
Morse Chain Company, The, Boston 64
Multi Signal Company, Boston 545
Nashua Machine Company, The, Boston, .. 303-4
National Engineer, Chicago, Ill. 317
National Tube Company, Pittsburgh, Pa. 342
New Bedford Textile School, New Bedford, Mass. 243-4-250-1
N. Y. Revolving Portable Elevator Co., Jersey City, N. J. 56
Nightingale & Childs Co., Boston 306
Norristown Magnesia & Asbestos Co., Boston, 389
Open Coil Heater & Purifier Co., The, Boston, 362
Oswald Lever Co., Inc., Philadelphia, Pa. ... 170
Parks Company, The G. M., Fitchburg, Mass. 52-53
Patterson Lubricating Co., Boston 354
Peerless Trading Company, Boston 59
Perfection Grate Company, Springfield, Mass., 350
Philadelphia Drying Machinery Co., The, Philadelphia, Pa. 182
Philadelphia Grease Mfg. Co., Boston, Mass., 353
Potter & Johnston Machine Co., Pawtucket, R. I. ..... 153 & 161-162
Power, New York 313
Pratt & Cady Company, Inc., Boston 338
Psarski Dyeing Machine Co., Cleveland, O. .. 41
R. & J. Dick, Ltd., New York 70

Rand, H. L., Worcester, Mass. 526
Raymond, Charles P., Boston 558
Richards, Atkinson & Haserick, Boston 44
Roessler-Hasslacher Chemical Co., New York 38
Root Mfg. Company, The C. J., Bristol, Conn. 183
Roto Company, The, Hartford, Conn. 356
Robinson & Son Co., Wm. C., Boston 394
Saco Lowell Shops, Boston ..... 118-120 incl.
Schaeffer & Budenburg Mfg. Co., Brooklyn, N. Y. 395
Schumaker-Santry Co., Boston 344
Scott & Company, Henry L., Providence, R. I. 105
Sellers & Co., Inc., William, Philadelphia, Pa. 129-130
S. K. F. Ball Bearing Co., New York, 135 & 375
Smith Drum & Company, Philadelphia, Pa., 69c
Smith Pub Co., W. R. C., Atlanta, Ga. 386
Southern Textile Bulletin, Charlotte, N. C. ... 61
Spindler, E. O., New York 67
Spool Cotton Co., The, New York 13-14
Stafford Company, The, Readville, Mass. 106-111 incl.
Steel Heddle Mfg. Co., Philadelphia 62
Strong, Carlisle & Hammond Co., The, Boston 396
Suter, Alfred, New York 100
Textile American, The, Boston 134
Textile Colorist, Philadelphia, Pa. 69b
Textile Finishing Machinery Co., Providence, R. I. 116
Textile Manufacturers' Journal, Boston 71-2
Textile Review Pub. Co., Boston 559
Textile World Record, Boston 73
Thermograde Valve Company, Boston 301
Threlfall, Wm. V., Agent, Boston .. 153-163 incl.
Toledo Scales Co., Boston 60
Tracy Company, Lewis E., Boston 136-7
Under-Feed Stocker Co. of America, The ... 390
U. S. Gutta Percha Paint Co., Providence, R. I. 117a
Union Special Machine Co., Boston 12
Universal Winding Company, Boston, 22-3-4-8-9-30
U. S. Bobbin & Shuttle Co., New York 55
Veeder Manufacturing Co., Hartford, Conn., 556
Van Guilder Hollow Wall Co., Rochester, N. Y. 214
Wade Publishing Co., Jos. N., Boston 42
Waldo Brothers, Boston 219
Walworth Mfg. Company, South Boston 326
Warren-Webster & Company, Boston 302
Watts Regulator Company, Lawrence, Mass., 300
Westinghouse Electric & Mfg. Co., Boston .. 36
Whitin Machine Works, Whitinsville, Mass. 164-169 incl.
Woonsocket Machine & Press Co., Woonsocket, R. I. 20-26
Woonsocket Machine & Press Co., Woonsocket, R. I. 154-5-6

The keeping of sheep for wool production is becoming of greater importance in German Southwest Africa. The number has now reached about 32,000 and the export of wool last season amounted to 187,000 pounds.

THE SILK ASSOCIATION OF AMERICA

The annual meeting of this organization was held in New York on March 25. Secretary Ramsay Peugnet in his report referred to business conditions in the silk trade:

The prosperity at present enjoyed by the silk trade is in some measure compensating our manufacturers for the serious losses occasioned by the labor troubles during the first half of 1913. Our manufacturers have not as yet felt the bite of European competition and probably will not until foreign manufacturers feel the necessity of capturing the American market. Looms in Europe have been exceptionally busy supplying their home market.

The Committee on Legislation submitted a brief on "pure goods" legislation which is to be presented to the sub-committee of the House Committee on Interstate and Foreign Commerce. This brief is in part as follows:

The most practicable and workable thing we have to suggest is the adoption of an act similar to the Merchandise Marks Act of Great Britain which makes misrepresentation of any kind a criminal offense.

Any legislation which attempts control of this character will be fruitless unless it brings to the consumer who uses the goods the label bearing information which it is designed to provide. It is not sufficient to mark the cloth or package in which the material is shipped by the manufacturer of the fabric.

At this time a large part of the silks sold in the United States are cut up by the manufacturers of ready-made clothing, hats, neckties, etc., or by manufacturers of other articles, such as bed quilts, sofa cushions, boxes, etc., or by upholsterers and decorators. The proportion of goods so used is steadily increasing every year and the goods sold over the counter direct to the consumer is decreasing in proportion.

In the manufacture of women's garments often the most valuable part of the garment, and the one in which wear is most important, is the lining. It is often less important to the consumer to know of what materials the trimmings and overskirt are made than the lining. At the present time a woman's silk dress is very frequently composed of a great many different materials manufactured by a large number of different persons. The lining may be of one material, the skirt of a second, the overskirt of a third· into the waist may enter half a dozen materials, the sleeves of one, the body of a second, the front, collar, cuffs, buttons, trimmings, each of other materials.

In order to inform the consumer of the qualities of each one of these items it might be necessary to attach twenty-five tags or labels to one ready-made dress; and the coverings of the buttons might not be the least important part of the information. We do not believe that such labeling is practicable.

It is proposed in some of these bills that the degree of adulteration in textile fabrics shall be determined by the Department of Agriculture or the United States Bureau of Standards. We have caused an exhaustive series of experiments, covering many months, to be made by the United States Bureau of Standards, the chemist of Yale, the chemist of the two most prominent silk dyeing firms in the United States, by a German chemist, and by the chemist of a silk manufacturer, in order to determine with what degree of accuracy such tests can at present be made.

These tests have shown that in the analysts of various samples of silk goods, where the actual percentage of weighting in the materials used was known, the percentage of weighting returned by these various chemists varies considerably, both from the actual percentage of weighting in the goods and from each other. The variations are particularly noticeable in the case of black silks, and the higher the actual weighting used of all kinds, the greater the margin of error in the analysis.

Many of these analyses have been made upon tin weighted silks, and in one case the results obtained on tin weighted silks by the use of a combination of nitrogen determination, the Kjeldahl Method, hydrofluoric acid method and ash determination method have been fairly accurate. The methods mentioned are those in use at the present time by chemists for determination of weighting in silks, but the same methods applied to silks where the weighting used was other than metallic, or a combination of metallic and vegetable weightings, have given very inaccurate results, this applies especially to that class of fabrics commercially known as "tailoring dyes."

The chemist making the most successful test upon tin weightings, has expressed himself as of the opinion that at the present time with the knowledge at his command, that he would not be willing to swear to the correctness of any analysis of weighted silks where the ingredients used in the weighting were an unknown quantity. This is partly due to the volatile nature of some of the materials used in weighting, to the loss of fibrin in the necessary manipulation of analysis, and to the variation in the different silks themselves, and to the fact that it is necessary to commence the analysis with the assumption that a certain amount of the gum has been lost or retained in the weighting and dyeing of the silk. It is necessary that all weighting of samples during analysis be made under the same standard conditions of temperature and moisture.

The election of officers for the ensuing year resulted as follows:

President, Charles Cheney, Cheney Brothers; vice-presidents, H. Schniewind, Jr., Susquehanna Silk Mills; Louis Stearns, John N. Stearns & Co.; M. W. Dippel, National Ribbon Co.; secretary and treasurer, Ramsay Peugnet. The new board of managers is as follows: To serve for one year—Albert Blum, Sidney Blumenthal, Fritz Hill, Charles E. Lotte, Joseph Skinner, Charles Slingland, Emil J. Stehli and Alexander D. Walker. To serve for two years—Conrad Buhler, M. W. Dippel, August Hunziker, Henry J. Soria, Samuel McCollom, Edward C. Rossmassler, Louis Stearns and Benjamin B. Tilt. To serve for three years—Rioichiro Arai, Edward E. Bradley, Charles Cheney, B. Edmund David, Frank W. Eaton, D. G. Dery, Jerome C. Read, H. Schniewind, Jr., and Robert J. F. Schwarzenbach. D. G. Dery was elected in place of Henry D. Klots, deceased.

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THE NATIONAL ASSOCIATION OF WASTE MATERIAL DEALERS

The first annual meeting of the National Association of Waste Material Dealers was held at the Hotel Astor, New York, on March 17. After President Hofeller delivered his address the reports of Treasurer Mark Sherwin and Secretary Charles M. Haskins were read and approved. Reports from the various branches of the association were read as follows: C. E. Haskins of the scrap metal trade; Simon Weil, paper stock people; Leo Loesser, woolen rag dealers. After the reading of these reports it was decided to cooperate with the National Association of Wool Fiber Manufacturers in educating the public to a better understanding of the necessity of utilizing waste materials.

The election of officers for the ensuing year resulted as follows: President, Louis Birkenstein; first vice-president, Simon Weil; second vice-president, Daniel I. Murphy; third vice-president, C. B. White; fourth vice-president, Edward Stone; fifth vice-president, H. H. Cummings; sixth vice-president, William Buxton; secretary, Charles M. Haskins; treasurer, Mark Sherwin. For directors: Ross B. Linton, Paul Loewenthal, Maurice Frankel, Theodore Hofeller, Charles Frankell, Louis Lahn, W. R. Cunningham, P. J. McArdle and James Rosenberg.

A banquet was held in the evening at which addresses were made by the Hon. Curtis Guild of Boston, Capt. F. H. Appleton and Louis Birkenstein.

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The manufacture of textiles is the most important industry in Philadelphia, their total value being over one-fifth that of all industries. Nearly one-third of all the wage earners in Philadelphia are engaged in the manufacture of textiles.

NATIONAL ASSOCIATION OF HOSIERY AND UNDERWEAR MANUFACTURERS

The following program for the annual convention of this association to be held in Philadelphia, May 12, 13, 14 has been announced: Morning session, May 12, will be an open one to which the public is invited. The meeting will be called to order at 10 A. M. in the Veteran Corps room of the First Regiment Armory, Broad and Callowhill Sts. The welcome address will be made by Mayor Rudolph Blankenburg. The following addresses will then be read: "Too Much Tinkering," by J. Hampton Moore, Congressman from Philadelphia; "Banking and Finance," by Geo. H. Earle, Philadelphia. Also an address by Edward J. Catell of Philadelphia.

The afternoon session will be devoted to the seamless and full fashion hosiery manufacturers. At 2.30 P. M. there will be a meeting of the various hosiery sub-associations, as arranged and announced at the previous session. At the same time there will be a special meeting for the underwear manufacturers in the Convention Hall. Manufacturers who are not members may attend this session upon application to the secretary.

All the knitting manufacturers, associate members and knit goods buyers are invited to the morning session on May 13. The following members will address the meeting: Joseph R. Grundy, of Bristol, Pa.; Calvin M. Smyth, of Young, Smyth, Field Co., Philadelphia, and Arthur T. Bradlee, of Boston.

The afternoon session will be an executive one and devoted to hosiery and underwear manufacturers.

The morning session on May 14 will be called to order promptly at 10 A. M. when the secretary, treasurer, standing and special committees, sub-associations, and the board of directors will read their reports. The following addresses will also be read: The Economy of Distribution as Relates to Sound Credits, by J. H. Tregoe; Operating Costs and Economies, by Clyde E. Murray, New York; Trademarks and Their Protection, by H. R. Culbertson, New York. An open discussion on the following topics will then be opened: Net weight yarns, credit bureau department, collection department, question box, impromptu discussion on the various questions asked, election of officers, selection of dates for next annual meeting.

THE TEXTILE ALLIANCE, INC.

Papers for the incorporation of the Textile Alliance have been filed at Albany, N. Y. This organization has been formed to protect mill owners against unjust exemptions and fraudulent practices in the manufacture and sale of mill supplies. The officers are: John P. Wood, president of the National Association of Wool Manufacturers, Philaplicable to the United States as to Gremany delphia; William A. Mitchell, of the Massachusetts Cotton Mills, Lowell, Mass.; Cesare Cone, of the Proximity Woolen Manufacturing Co., Greensboro, N. C.; Albert M. Patterson, of the Waterloo Woolen Manufacturing Co., Waterloo, N. Y. and John J. Nevins, associate secretary of the American Association of Woolen and Worsted Manufacturers.

In the annual report of the United States Worsted Co., Andrew Adie, president, states that he has adopted a plan by which it is hoped to put an end to graft in their mills. It consists in a contract to be signed by concerns with whom the company does business, which provides for a forfeit in case a representative of the firm offers any gratuity to an official of the mill corporation. This contract is as follows:

Under a consideration that the United States Worsted Co. has given and intends to give some portion of its business to us, we hereby agree to pay to the said company the sum of $5,000 as liquidated damages if any person directly or indirectly in our employ, shall offer or give to any employe of said United States Worsted Co., any gratuity, gift or present with the intent of influencing the action of said employe in relation to the business of said company.

We further agree that our employes shall be notified forthwith that no gratuities, gifts or presents are permitted, and that we have bound ourselves in the sum above mentioned to answer any damages for any such offer or gift by them.

BRADFORD AND THE UNDERWOOD TARIFF

From an Address by Sir Swire Smith before the Keighley (Eng.) Textile Society

The new United States Tariff is a measure of far-reaching influence in many directions. In its relation to the trade of the United Kingdom, and especially to the wool industry of Bradford, it may prove to be the most important act of commercial legislation that has been passed since the Civil War. The United States is the richest country in the world. In extent and productiveness it is equal to more than twenty Britains rolled into one. Its resources in agricultural land and minerals surpass those of any other country. Its varied climate enables its people to produce within its own borders nearly everything that they require. It has a population of nearly a hundred millions, rapidly increasing, the best paid, the most highly equipped, and the most intelligent and energetic in the world—more lightly taxed than our own people.

This very Underwood Tariff that now arrests the world's attention, with its sweeping clearance of duties upon food and raw materials, brings America nearer by many steps to her great inheritance of agricultural and industrial supremacy, which will benefit the world, and from which it is not likely that she will turn back. In this movement towards a wider commerce, Britain, next to the United States, will be the greatest gainer. In 1912 the oversea trade of Britain—imports and exports—amounted to the stupendous sum of £1,342,000,000, of which over £200,000,000 (about one-sixth) were with the United States. Germany came next with £102,000,000. These are the two foreign countries that do most trade with Britain, and more especially with this district; but it is obvious that America is the field that offers the most highly successful business in the future. For many years before and since the Civil War, the United States was Bradford's chief market for wool goods, and but for the tariff with its frequent changes and fluctuations, would probably have remained so. The returns of the exports of this district are entered at the American Consulate at Bradford. There are separate returns at Huddersfield and other centers of the wool industry, but the Bradford figures are the most available and the conclusions from them apply to Britain generally.

The total exports from Bradford for the first four years 1898-1901 averaged £1,485,000, while during the last four years 1910-1913 under equally adverse conditions, they advanced to an average of £2,768,000 a year—nearly double. Thus it would appear that no tariff, even doubling the price of superior goods and novelties of Bradford, has been able to permanently shut them out of the American Market. The same fate has not been enjoyed by the makers of the "goods for the million" which in days gone by employed so many Bradford spindles and looms. These have lost the American trade, but after much tribulation they have happily found customers in our colonies and in other countries, and for some time have been steadily employed. Indeed, but for the recent depression caused by the war in Eastern Europe the new and latest act of the American industrial drama would—except for its effect on raw material—have almost escaped observation.

If we may in any degree mirror the future from the past, a brief summary of the fluctuations caused largely by American Tariffs within memory, may not be uninteresting. They exerted a profound influence not only over America, but over every other manufacturing country. I will only refer to their effect on the wool industry of Britain. In 1889, the year before the operation of the McKinley Bill, our total exports of wool products amounted in round figures to £30 1/4 millions. In 1891, the first year of the McKinley tariff, up went the American duties and down went our exports of wool products to £26 3/4 millions. In 1895, on the passing of the Gorman-Wilson Bill, making wool free and considerably lowering the duties on manufactures, our exports immediately rose again from £26 3/4 millions to £30 1/2 millions; while on the passing of the Dingley Bill in 1897 they fell in 1898 to £24 millions, with consequent disasters. Since that time, now 16 years ago, in spite of the disturbing influences of the Aldrich Payne Bill, our total exports of wool products have grown from £24 millions in 1898 to £44 millions in 1913, an increase of 83 per cent. The figures show that the late American tariff, although intended to be prohibitive, had to a large extent lost its sting, so far as this country was concerned.

In the meantime, the prosperity of America—which no legislative enactments can destroy—has raised a large class of consumers who do not allow the tariff to prevent them from buying what they want. Even with the excessive duty, America imported in 1913 wool of the foreign value of £6 millions and wool manufactures of the foreign value of £9 millions, or nearly £18 millions on passing the American Custom Houses, against an import of £5 3/4 millions of wool products in Britain, the one country that opens its ports freely to the world.

It is said of America that she holds the key of industrial supremacy, but that she has turned it against herself. This has been undoubtedly her position with regard to wool, which she has shut out by exhorbitant duty—a complete disappointment so far as regards the production of domestic wools, which has not increased during the last twenty-four years—and a serious handicap of the manufacturers in restricting the variety of their productions by depriving them of free access to the various qualities of foreign wool. In spite of this drawback, during the last thirty years, the wool industry of America in all its branches has made marvelous progress in extent and efficiency. The largest and best equipped worsted factories in the world are undoubtedly in America, and, in my opinion, helped as they will be by the tariff when the adjustment of the economic conditions of labor and the cost of production have been assimilated with those of this country, those great factories will hold their own in efficient and economic production against all their competitors. The sheet anchor of the Underwood Bill lies in its broad and generous provision for the benefit of the consumer in removing the taxes from food,

and for the manufacturer in free raw materials, from which one may hazard the opinion that neither consumer nor producer will go back. And yet it is not likely that the agricultural classes and the general public who, under the free food clauses of the new tariff get no protection, will willingly consent to the continued protection of the manufacturers. There is an increasing desire among all producers for an export market, and this is not to be secured in conjunction with high protection. The way to encourage exports is to encourage imports.

The abnormally high price of wool and wool goods in America has made clothing exorbitantly dear, and has led to an adulteration of cloth and dress goods by a stealthy admixture of cotton and shoddy. The result is shown in a greatly reduced consumption of wool, which at the present time is recorded as five pounds per head in the States, against much more than double that weight per head in this country.

Strange to say, the effect of the tariff has been to depress the price of wool throughout the world outside America, by to so large an extent closing against the outside producer the largest and wealthiest market. The first effect of free wool will be to stimulate the wearing of wool apparel throughout America, which will increase consumption and provide fuller employment for the domestic factories, and will soon be felt in the wool producing countries. It is said that already there has arisen in America a demand for New Zealand and Argentine mutton as well as wool, and the Panama Canal will open up new markets in the Far East and South of immense importance to America.

The Underwood Bill has come into operation at a time when there has been no assault on the protective system of America except from within. The rebellion against high prices has provoked the conscience of a great nation, and brought about results more drastic than were dreamt of a few years ago. Whether this great step will lead forward to further freedom or will be retraced depends upon the patriotism and judgment of the American people, and the general prosperity of the country during the next few years. To this district the lowering of the American tariff at this time is equivalent to the opening of a new market, for the sudden depression in the East is at least temporarily turning many eyes Westward in the hope that relief may be found in that quarter. The effect of the tariff is already felt in wool; the great fact is before us that the wool manufacturers of America can now buy British and other wools for practically 6d. per lb. less than they paid for them a few months ago. The spinners of America, who, for the last sixteen years, have been prohibited from buying imported tops, can now buy them at a duty of 8 per cent. The weaver who found it impossible to import foreign yarn, can now buy it at 18 per cent. duty, while the importer of finished goods, who in many instances paid a duty doubling their price, can now effect his purchases on payment of a duty of 35 per cent. But the greatest gainer by this transformation is the American citizen, the man in the street and on the farm, with his wife and family—numbering 100 millions of people—who have been compelled by the outrageous tariff to be clothed in high-priced goods of doubtful quality, and who will soon have the choice of the world placed before them on thousands of shop counters throughout the Union at prices 20, 30 or 40 per cent. lower than they have been paying. Does not this change point to a greater production of wool the world over, and in the first instance to an enlarged field for the American manufacturer at his own door? Does it not point also to larger exports from Bradford of all the commodities that find a market in Amreica and that give employment to the people of this district?

THE NAVY DEPARTMENT INVITES SUGGESTIONS

We have received the following letter from the United States Navy Yard at New York:

United States Navy Yard,
New York, N. Y., March 9, 1914.

The Navy Department has had in use for several years standard specifications No. 28-T-1, covering crash toweling for the use of the naval service. Certain changes in these specifications are now thought to be necessary and the General Storekeeper, Navy Yard, Brooklyn, N. Y., would be very glad to receive full and free criticisms of these specifications, together with any suggestions from textile manufacturers regarding the adoption of new specifications.

Will you kindly publish this information in your paper, making a special point of the fact that the General Storekeeper will be glad to receive the opinions of manufacturers on this subject. The Navy is always glad to communicate with manufacturers regarding the material it uses and in the present instance, suggestions offered by manufacturers may be of great mutual advantage to the service and to the manufacturers.

Respectfully
A. W. Beecher,
Paymaster, U. S. N.

WOOLEN AND WORSTED OVERSEERS

The National Association of Woolen and Worsted Overseers will hold their regular semi-annual meeting at Rocky Point, Providence, R. I., on Saturday, May 16th. Special cars will leave the Union Station in Providence running direct to the Point. The Dyers' Club, North Main St., Providence, has extended an invitation to the members to visit the Club at their rooms.

On Saturday, May 2nd, the National Association of Wool and Worsted Overseers will attend the Textile Exhibit at Mechanics Building, Boston. A special meeting will be held in the Convention Hall.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

EUROPEAN METHODS OF CARBONIZING RAW STOCK AND PIECES

BY ROBERT DANTZER

Translated from the French by the Editor of the Textile World Record

The widely different reactions exhibited by wool and vegetable fibers in the presence of an acid were studied by Fenton and Crone of England, but it remained for two Frenchmen, Izart and Leloup, in 1854 to make the first industrial application of the knowledge thus acquired. Many processes for carbonizing have been patented since that time, among them being those of Julien, 1854; Bradi, 1855; Martin & Newmann, 1858; Colme, 1861; Larcadi and Pouydebat, 1866; Schlosser & Co., 1866; Fuzon, Delamotte & Faille, 1867; Rydill, 1872, and others.

The essential characteristic of all these processes consisted in the use of strong mineral acids, which after dilution are brought into contact with the vegetable materials at a certain temperature. Sulphuric acid has been preferred for this purpose, although hydrochloric acid has also been used. At a temperature of 160° F. sulphuric acid having a strong attraction for water, decomposes and by removing the water carbonizes the cellulose which comprises the greater part of the vegetable substances found in wool, the reaction being as follows:

$$C_6H_{10}O_5 = 6C + 5H_2O.$$

The wool is not seriously affected if the operation is properly carried on. There are three distinct methods of carbonizing wool: 1. By liquid acids; 2, by gaseous acids; 3, by mineral acids.

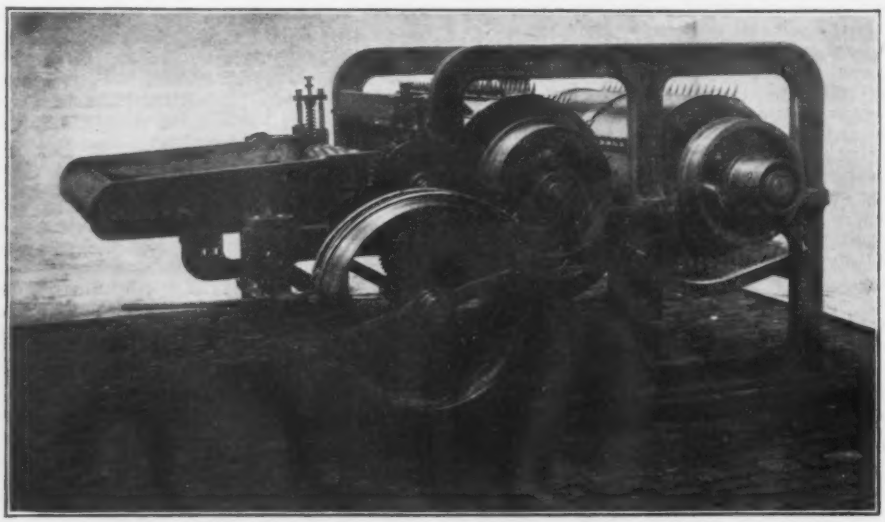


FIG. 1. THE DOUBLE OPENER FOR WOOL

The first named process is chiefly employed. The wool can be carbonized either in the form of raw stock, worsted sliver, cloth, or rags intended for shoddy.

Carbonizing Raw Stock with Liquid Acids

This process is varied somewhat to suit the nature of the wool. If the wool is in the grease it is necessary to scour it before carbonizing. This is also true of certain varie-

ties of wool waste. Grease wool which is to be carbonized is first opened up by running it through the double opener shown at Fig. 1, which removes the sand and dirt, leaving the wool ready for the scouring process. This machine, as shown by the illustration, consists of two drums in which are set strong spikes, the drums being covered with an iron hood. Underneath is a screen through which the dust and loose dirt drops during the passage of the wool. The feed table delivers the wool to two feed rolls of which one is equipped with inclined teeth delivering the wool to the first cylinder, which carries sixteen rows of teeth. The second cylinder of the shaft on which the driving pulley is mounted has only four rows of teeth. These cylinders are driven at a speed of three hundred to four hundred turns per minute.

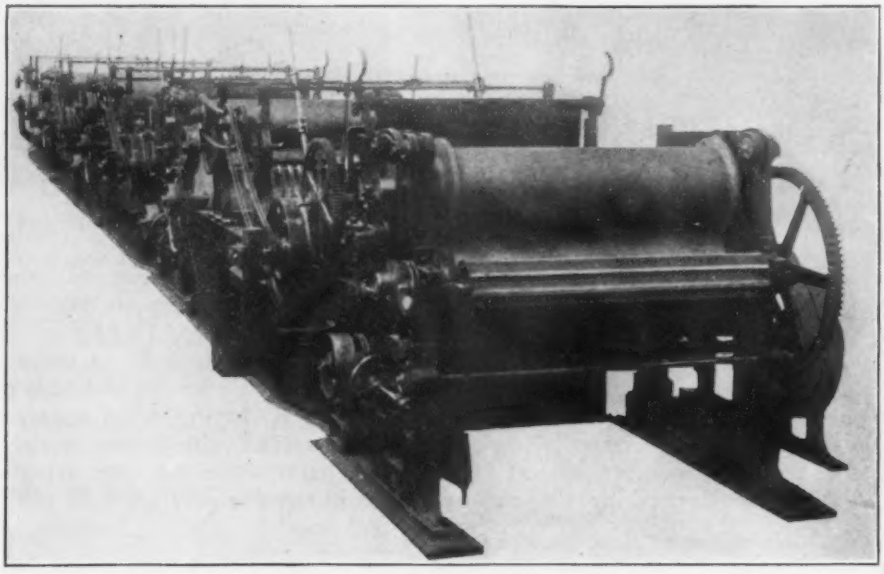


FIG. 2. A WOOL SCOURING MACHINE

After coming from this opener the wool is scoured in a four, five or six bowl machine, Fig. 2. The first, or soaking bowl, is equipped with a feed table and two double agitators, terminating with a set of heavy press rolls mounted on an independent frame, Fig. 3. The second, third and fourth bowls are like the first with the exception of the press rolls which are mounted on the bowl itself and give a pressure of five to seven tons. The fifth or rinsing bowl is like the others except that the press rolls are mounted and driven independently.

The scouring machine delivers the wool to the dryer, which is similar to the carbonizing machine that will be described later. The washed wool, also many kinds of noils and wastes which do not need scouring, are immersed in the acid solution, in cement or lead lined wooden tanks each having a capacity of about 8,000 pounds of water. Sulphuric acid at 1° to 4° Be. is used, the strength depending on the nature of the wool and the quantity of impurities present. The duration of the bath also varies, but should not exceed twelve hours. In some cases the process is accelerated by using stronger solutions of acid, 5° to 7° Be., but the duration of the immersion is then reduced to two hours. The wool in the acid bath should be stirred form time to time by means of wooden poles. The work is sometimes facilitated by using perforated metal baskets suspended in the tanks. These baskets are raised by means of a windlass and the wool thus carried to other parts of the room.

After treatment in the acid the wool is

extracted to remove the excess liquor. The hydro-extractor used for this purpose has a 40-inch copper basket, the shell being lined with lead. The wool is then run through an opener, Fig. 4, to prepare it for the carbonizing process. The opener has but one cylinder and operates on the principle of the double opener, Fig. 1. This operation is necessary in order to obtain a thorough carbonization. The wool is then spread out in

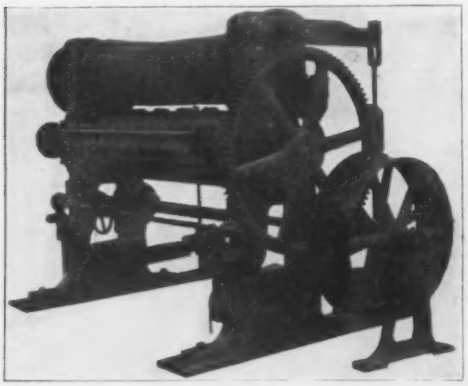


FIG. 3. PRESS ROLLS MOUNTED ON AN INDEPENDENT FRAME

a chamber or carbonizing oven. The oven built by Math. Snoeck d'Ensival, Belgium, consists of five compartments, 24 feet long and 10 feet wide, formed by the endless metallic aprons, as shown at Fig. 5. The wool is first spread on the wooden slat apron, A, and delivered to the upper metallic apron, B, which carries it to the opposite end, C, of the machine, where it falls to the second apron, E, which transports it to the other end of the machine, where it in turn falls on the third apron and is carried back to the opposite end where it falls to the last apron, which carried it to the other end where it is delivered in the

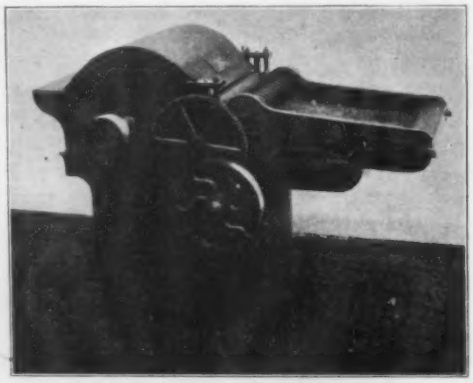


FIG. 4. A WOOL OPENING MACHINE

carbonized state. The metal sheets, F, guide the wool when falling from one apron to the other. The aprons are supported by the rollers, H, in order to take up the slack. Under the feed table is placed a heater, K, having 1,300 square feet of heating surface with a ventilator, V, delivering 9,000 cubic feet per minute. The walls of this chamber are built of fire brick and the glass windows are arranged so as to facilitate an examination of the interior of the machine. The moist air escapes through the two chimneys, shown in the illustration.

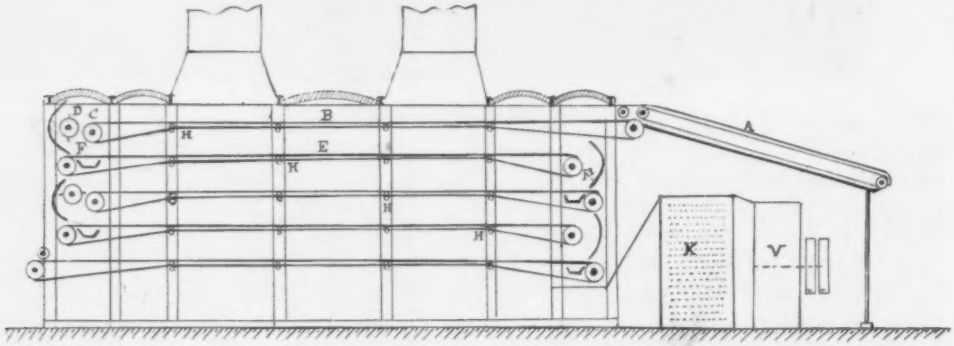


FIG. 5. A FIVE COMPARTMENT CARBONIZING OVEN

(To be continued)

ENGLISH NOTES

From Our Regular Correspondent

The information supplied monthly by the American Consuls as to shipments from their consular districts is amplified by the British trade returns. The following abstract in relation to the first two months of this year and last year may serve as a guide to the development of trade under the new tariff conditions:

Exports to U. S.	Jan. Feb. 1913	Jan. Feb. 1914
Cotton yarn .....lbs.	1,145,200	1,203,700
Cotton piece goods, unbleached .....yds.	718,800	706,500
Cotton piece goods, bleached	2,424,100	3,889,300
Cotton piece goods printed	776,700	1,176,500
Cotton piece goods dyed ...	3,749,400	6,172,500
Cotton piece goods yarn-dyed	969,200	1,237,000
Total cotton piece goods ..	8,639,600	13,186,100
Worsted yarn .....lbs.	9,200	230,900
Woolen tissues .....yds.	548,200	1,681,000
Worsted tissues and stuffs..	1,786,900	6,962,300
Carpets .....sq. yds.	22,500	70,400
Spun silk yarn .....lbs.	119,359	125,452
Silk broadstuffs pure ...yds.	53,063	74,540
Silk broadstuffs mixed	109,830	337,861
Jute yarn .....lbs.	56,100	511,900
Jute piece goods all kinds, yds.	14,796,500	13,183,700
Linen yarn .....lbs.	443,200	564,100
Linen piece goods all kinds, yds.	24,062,100	23,926,100
Apparel, not waterproofed, value	£16,578	£37,999
Textile machinery .....tons	1,497	745
Total value	£68,454	£55,326

American manufacturers in several non-textile trades have sales offices in London for the transaction of export business with the world at large. As a place regularly visited by foreign buyers and the home of hundreds of commission houses acting on behalf of importers oversea, London has unique advantages. It is the city of all others for doing foreign and colonial trade in the higher sorts of worsted and woolen piece goods, but it is not so definitely favorable a center for bulk quantities. All the Yorkshire, Scotch and West of England manufacturers of high standing have their offices in or about Golden Square, W., where the American Woolen Company has opened its new selling office.

In particular the European buyers flock to London and Frank E. Anderson, the company's agent for foreign countries, in proposing business in Boston, was told that his samples could be looked at only in London. Nothing like the whole of the British export woolen trade is concluded in London, for the Lancashire and Yorkshire shippers or export merchants send travelers to the furthest parts of the earth and orders are booked in Bogota, Tientsin, Delhi and other up-country markets as well as in the ports. However, a London office is not inconsistent with the despatch of travelers. The business booked in Valparaio or Shanghai or Yokohama is paid for in London by arrangement with some London, Hamburg or Paris merchant as a rule. Although virtually all Australian orders are given out in London, it has paid some English worsted manufacturers to maintain traveling agents in Australia to show the samples on which orders are booked in London later. The course for manufacturers to adopt in prosecuting foreign trade is conditioned by the class of goods to be sold and the markets that are in view. Not all manufacturers find London the best place for extending their foreign business. The advertisement in the display columns of the Daily Mail announces that the American Woolen Company is enabled by the tariff change to offer its fabrics for use in all parts of the world. It is headed "Wanted—a British Manager" in allusion no doubt to the much-discussed appointment of an American manager to the headship of one of our worst railroads. In course of a tour of the world Mr. Anderson has picked up a flattering opinion of the esteem in which the English are held by their customers. It may be mentioned incidentally that quite a considerable number of foreigners are employed to carry British samples; also that a large proportion of the shipping merchants are of Continental birth or family. The manager sought is required to have "initiative, organizing ability and wide experience of the marketing of woolen goods in connection either with manufacturers, warehousemen or shippers."

Very different experience falls to the lot of these three. The sales made in Golden

Square are made largely by the manufacturer in person, who spends nearly six months in the year there. He is aided by the London agent, who receives a commission on sales and comparatively little by mill men. The warehouseman buys for stock and jobs off his goods in relatively small quantities. He sells to retailers more than to wholesalers. The shipper deals wholesale, does not keep stock and sends out samples in profusion. Probably a man of wide experince in a woolen shipping house would be likeliest to suit the needs of Americans seeking bulk trade in plain goods or in unconfined fancy styles, but such men have comparatively little to do with Golden Square, except on occasional visits to look at new patterns. The regular shipper deals mainly in cloths outside the Golden Square range.

* * *

The improvements in pay and in working conditions have brought a better class of men into British dyehouses and it seems that their efficiency compares favorably with the class of help forthcoming at Bradford, R. I. In his address to the shareholders Milton S. Sharp of the Bradford Dyers' Association spoke feelingly of the inefficiency of the "endless stream of transient and almost unteachable labor" and told of the efforts to attract "a more staid, active and intelligent help"—by building a large number of houses for their families. Commission dyers in cities like Bradford and Manchester possess a well-marked advantage over their competitors in small towns, where there is no reservoir of skilled labor to draw upon. Dyers' men are paid more in the cities, but they are worth more than the scratch collections of green hands that have to be employed when working nights or in the busiest times. Quite the cheapest labor the English dyer ever sees is that which is paid for at the highest piecework rates. And the dyer only five miles out of the city finds that the best men will not remove into the area of reduced chances of employment for his family or himself. In a normal state of trade the dyehouse manager in Bradford can have all the help he wants by telephoning to the union offices. Bradford, England, is removed from Bradford, R. I., in more than one respect.

* * *

In the woolcombing industry, where wages were admittedly low, there has been an advance since 1905 of 25 per cent. There has been an advance too in the cost of new buildings sufficient to make the chairman of Woolcombers, Ltd., cry out upon "the enormous cost . . . the very astounding cost per comb" of the premises erected during the past year. Inquiry from architects shows that the cost of building new sheds has increased 30 per cent. in ten years. The combing or weaving shed or warehouse that could be built at $7.50 a square yard now costs $10, principally because of the rise in the lead and iron largely used in structures of this type. Half the increase is the product of the last three years, during which time building has been active, notably in the cotton weaving business in East Lancashire and in both the worsted and woolen trades of the West Riding. The unusually high costs of building did not deter manufacturers during the boom in trade, but they are looked at unfavorably now.

A collapse which might have been more serious in its effects has done some discredit to the reinforced concrete type of mill construction. The roof was used as a tank for the storage of water pumped from a well and when the tank gave way some 600 to 900 tons of water carried away the end of the mill, wrecking machinery and washing out dozens of bales of raw material. The error apparently lay in the lack of columns adequate to carry the load on the roof, but the result may easily be to encourage Yorkshire manufacturers to continue their use of stone and brick.

* * *

It was at no time probable that manufacturers and dealers in mixed fabrics would lend their sanction to the highly detailed proposals of the Silk Association in respect of the purity of silks. The proposal was to institute standards for (1) pure silk, (2)

standard silk, (3) silk, (4) weighted silk. Certain manufacturers of pure silks are known to hold the belief that legislation upon these lines would help them materially as against the foreign competitor in the home market. As no provision is made for the term "artificial silk" the effect would apparently be to disqualify the use of that name for fiber not produced by the silkworm. The proposal has been rejected by the Bradford Chamber of Commerce, as going too far. A merchant gave the opinion that it would not be practicable to describe variations of quality below "pure silk." The Silk Association is, however, not averse to moderate weighting and seeks to distinguish between light and heavy weighting. A Bradford maker of mixed wool and silk goods feared that if the silk men were encouraged spinners of fine Botany might begin to demand that all pieces made from cheaper yarn than theirs should be marked. The matter is receiving careful attention from the Manchester Chamber of Commerce, whose members are bound to view the proposals with one eye for the possible effect that an example might have upon the cotton trade.

* * *

The abolition of the half-time employment of children in the mill is once more imminent and the prospective curtailment of the labor supply is of serious concern to the cotton, worsted and silk industries. Already there is trouble in getting young people and in some quarters half-timers are only employed because full-timers in sufficient number are not to be had. Half-time may begin at 12 on passing a stiff examination, at 13 certificates for full-time working can be taken and at 14 the child becomes eligible for mill hours in any case. In many districts obstacles have been interposed by the education authorities for years past and it is to be supposed that some of them will put their provisional powers into force and make 15 the age for school-learning. It is proposed further to give local authorities power to compel attendance at continuation classes. As agricultural members are proposing exemptions in rural districts there may perhaps be a chance of delay or exception in the textile districts. The half-time system hardly exists outside Lancashire and Yorkshire, so that for the rest of the country the abolition is of no concern. Hitherto, the less-educated members of working families have entered the mill and those of more schooling have gone into offices and shops. Manufacturers may therefore have to reckon on a growing distaste for the mill as well as upon a reduced source of supply.

* * *

The statement has been made that $750,000 has been spent in improved humidifiers since the issue of last year's regulations respecting steaming in cotton weaving sheds. The Home Secretary is to visit Lancashire this summer and see the result in order to judge for himself between the unions' officials who plead for the abolition of artificial humidity and the manufacturers who say, in effect, that to stop humidification would be to commit industrial suicide. The remark of one member of the employers' deputation is worth notice: "Find me a size that can be manufactured without humidity and you will never see me at the Home Office again."

It may be a sign of health that union officials have nothing more urgent to do than to press for the abolition of the humidification without which about half the cottons that are woven could not be manufactured at all; and for the abolition of fines for bad work. It has been shown that the fines work out on Horrockses, Crewdson's 8,000 looms at one-half cent per loom per week, the proceeds going to charities. In some sheds the fines are returned as a dividend to the weavers as a whole and in others fining has been dispensed with. Naturally, the necessity for fines varies with the goods woven and as it is a substitute for more severe punishment weavers are not likely to gain anything at all from the grant of their requests. However, that is a highly common result of these factitious agitations.

* * *

The Prevention of Corruption Act, passed in 1906 to suppress the graft evil cannot be thought to have extinguished illicit commissions, but probably most trades are a little

healthier for its operation. It has been useful in non-industrial directions and although most convictions have ended with fines the law has been strong enough to send a few persons to prison. A list of the convictions on indictment includes the following penalties: Bribing men to enrich and underweigh metal residues purchased, 9 months' prison; giving money and offering employment abroad to workmen in order to learn trade secrets, 6 months' hard labor; an accomplice, 4 months' hard labor; an accomplice, 1 months' hard labor; offering bribe to debt collector to represent debtor as gone away or bankrupt, 6 months' hard labor. The publicity and odium of a successful prosecution is in itself punitive and it is observable that at least one supplier of textile mills was driven out of business by disclosure of his bribery.

FAULTS IN WOOL COMBING AND THEIR REMEDIES

BY JOHN BROWN

(Continued from March.)

The most common faults in carding are too much sinkage, broken fibers, neppy cardings, and slivers of uneven weight. The first two faults are often caused by the speeds of the licker-in rollers not being properly adjusted. As the stock leaves the feed rollers, it is in a semi-matted condition and it is necessary that the first roller should move at a very slow speed, otherwise there is a tendency to break instead of straighten the fiber. In all the succeeding rollers of the licker-in there should be a gradual increase. If this is properly carried out the fibers are fairly well straightened when they come to the cylinder. Then the cylinder with the workers and strippers can clean and straighten the fibers better. A common mistake is to set all the workers on one cylinder, the same distance from the surface. This puts double work on the first worker. Set the first worker farthest away, then set the second a little nearer, and the third nearest of all.

Neppy sliver may be caused in several ways. The card clothing may be too coarse for the stock; the clothing may have been run too long without stripping and grinding; the clothing may have bare places; the fancy may be set too close to the cylinder. The wire on the fancy should just touch, but not dig into the wire on the cylinder; damp wool may have been fed to the card. Coils of steam pipes are fixed under the feed sheets in many carding sheds. When the atmosphere is damp steam can be turned on and the stock kept in a proper condition for working.

Uneven weight of slivers. If all the cards working on one class of stock do not turn out slivers of equal weight per yard, trouble

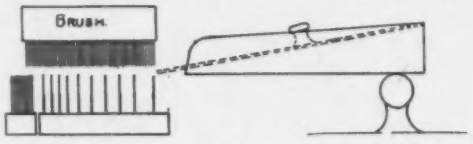


FIG. 6

will result in all subsequent processes. Where automatic feeds are not in use, and the cards are fed by hand, the feed sheet must be divided into three parts, and each batch of wool accurately weighed before it is put on the feed sheet. All the second doffers must either be of one size, or so geared as to deliver the same number of surface inches per minute.

Burry wools should be passed through a willey before scouring. Some bur rolls are fixed so as to knock the burs off on the licker-in part, and if not very carefully set, there is a tendency to take part of the fibers along with the burs. Crushing rollers are sometimes set either in the middle or at the finishing end of the card, the crushed burs falling on the floor in the form of dust. Whatever system is used, the fewer burs left in the sliver after carding, the better it is for the comber.

Backwashing. Among the faults which occur in this process may be noted unevenness in color, caused by inattention to the scouring liquor; irregular weight, from not keeping the full number of ends at the feed end, from overoiling or underoiling, and from improperly gilled slivers. Continuous liquor is the best preventative for the first

fault. Instead of making a sud and then running it until it is worn out, the condensed water from the steam traps should be slowly run into the bowls, adding a little soap occasionally to keep the liquor at the right strength. A syphon overflow takes the surplus from the bottom of the bowl. Generally the overflow from the top bowl runs into the bottom one, but where the stock is blued there must be a separate outlet to drain from each bowl. For ordinary 60s a temperature of 110° for the first bowl, and 105° for the second will give the best results. If the stock is to be blued the best

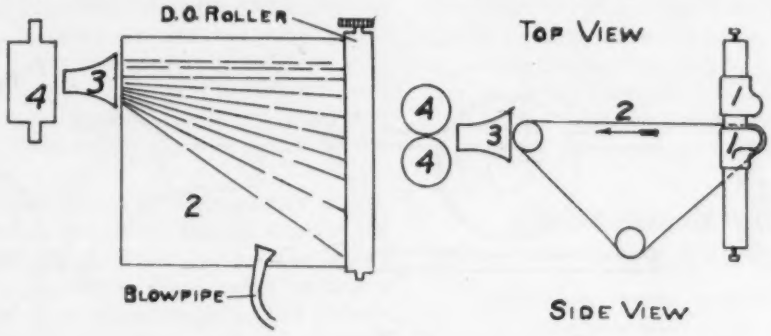


FIG 7
1, roller brushes; 2, table leather; 3, funnel; 4, calender rolls

thing is to use the plunger feed, Fig. 5, which is driven from the roller, and ensures a uniform oiling.

Bad gilling may be caused by having too little weight on the back roller. Just enough pressure is required to prevent the stock from being pulled by the fallers. Stock of 60s quality requires not less than 10 pins and up sometimes to 15 pins per inch, and the pins must be kept in good order. As soon as the drawing leather begins to wear into holes, change it for the new leather or cut work will result. Put as long a draft on as the stock will stand without showing thick and thin places in the sliver. If the draft is too low the sliver will be cloudy. These remarks apply to all gill boxes, including finishers.

Irregular oiling. Many different methods are in use for oiling the stock as it leaves the cylinders. The spray motion, Fig. 4, does well for oiling stock at the rollers of the scouring bowls, but in the small space between the cylinders of the backwasher and back roller of gill boxes, the plunger feed, Fig. 5, is most suitable. The oiler must stop and start with the backwasher, or there will be an excess of oil when the machine stops and a dry place when it starts. In passing through the gill the oil is well distributed and with the subsequent gillings and doublings all the fibers are evenly lubricated. If the test for oil is taken at the backwash it should be on the heavy side. If tested separately, it will be found that the noil generally has more oil than the top.

Top not properly cleaned from neps and other impurities is a serious fault. This may be caused in various ways: By making too light a noil. However tempting it may be to obtain a good tear, the stock must be thrown so far over that heavily charged tips of the slivers get well within the fine rows of the small circle. The dabbing brush may be set either too far back or too far forward. When a new brush is fitted the first row of bristles must overhang the nearest point in the circles about a quarter of an inch. Then as the brush wears down at the heel, and has to be packed, it still gets its work in before the circles separate. All dabbing brushes should be regularly examined, and as soon as they fail to get the stock in at the point where the circles meet, they should be lowered. The circles may be too far apart. This fault is easily remedied by loosening the steam chest nuts and drawing up the small circle until the pins almost touch the inner row of the large circle. The circles may have run too long without being repaired.

There may be too much weight on the bottom part of the drawing-off rollers. This causes the stock to rise and ride over the pins instead of passing through them.

Slubs or cut work may be caused by bad piecing or thick, uneven slivers from the gill box. The drawing-off rollers may have been set too close to the circles, or may have been too heavily weighted. The leathers may have been run after they are worn through or the rollers may have been untrue. The front part of the dabbing brush may have been set too low or the circles may have been too cold. If the conductor drops too soon or too late the slivers are liable to drag, the feed to be uneven and the slivers cut as a result. The base of the conductor should be level when it arrives at the point where the circles meet, Fig. 6. When the conductor finally drops it not only tightens the sliver, but materially assists the brush in putting the stock into the circles. Too much stress cannot be put upon the advisability of keeping the circles clean and in good repair. If they are allowed to get out of adjustment, the result is extra wear and tear on the brush. The stock does not pass freely when the rollers are drawing off, and this breaks the fibers. Broken pins, especially in the front rows, do not allow the neps to go into the top instead of being retained in the noil. The lifting knives should be properly graded to the width of the different chambers, and of such a gauge as to be well clear of both rows of pins. They must be carefully curved so that there is the least possible friction on the pins. Knives badly curved soon wear flat sides on the pins, which is bad for the circles. With very tender wool the worn pins cut the fibers, instead of allowing them to pass through freely, especially if the stock has not been very well gilled.

Among the faults with the square motion comb are loss of tear and too large an amount of noil. The wool should be fed on the circle with the fibers in the opposite direction from that in which they left the card. This can be determined by breaking the sliver. One end will be found pointed and fairly clear, while the other is neppy up to the end of the staple. The rough end should be fed in first. The back rollers should deliver so there is neither drag nor slack. When the filling head is at its nearest point to the circle, the distance from center of the roller to the outside row of pins in the circle must be equal to the average length of the staple to be combed. If too far off, there will be an excess of robbings; if too close, it not only makes the work of the drawing-off rollers more difficult, but adds to the weight of backings. The press knife, if not set low enough, allows the square motion fallers to draw out fibers which should go into top. Segments set too far over, cut-off knife too

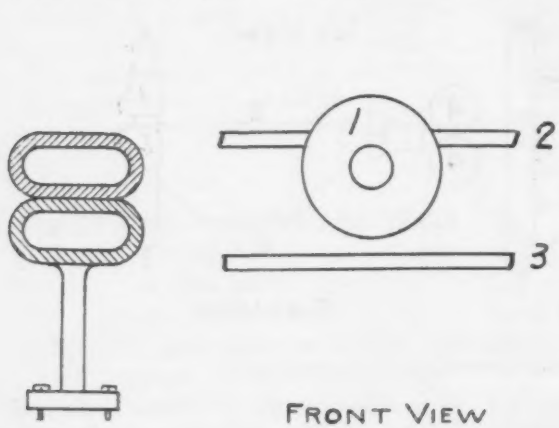


FIG. 8

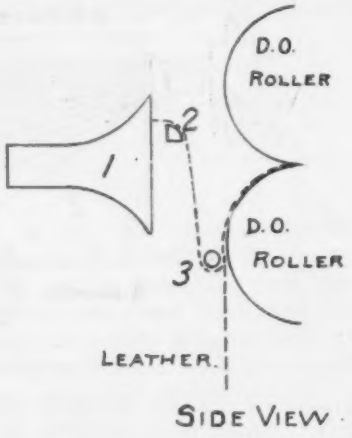


FIG. 9

1, funnel; 2, folding bar; 3, ordinary leather bar

far forward or backing rollers not near enough to inside row of circle have the same effect. Slubs or cut work is made when the cut-off knife is set too far back, and when the bearing brasses of drawing-off rollers are worn so that they touch each other, also when the drawing leather is worn or uneven. The best setting at this point is the distance between outside row of circle and inside row of segment; outside row of segment and cut-off knife; and between the knife and roller. In each case it is sufficient to allow a sheet of writing paper to pass easily through. All these faults and more, are made if the stock is worked too damp or if the circle, square motion and segments are not kept warm enough. Great care should be taken in folding the sliver as it leaves the drawing-off rollers so that the short fibers are rolled well inside, otherwise trouble will result in the finishing.

These directions as to feeding apply also to the nip comb, and nearly the same faults are caused if the stock is too damp. The fallers must be clean and in good order or heavy noil and neppy work will result. The jaws of the nip should be carefully ground and well fitted, otherwise the least unevenness in the sliver will result in the cutting of the fiber, thus adding to the weight of the noil. The carrying comb, gently pressing against the nip, should rise high enough to get a firm hold of the tuft, and then travel far enough to put all the neps over the outer row of circle pins. This machine, like the square motion, makes what is known as a hen-wing sliver, all the short fibers being on one side. A good plan is to use the table leather, Fig 7, fixing the funnel at the same side as the long fibers, and by the aid of a blow pipe rolling all the short fibers inside the sliver.

Accurate timing and setting of the various parts are necessary for the best results. The press roller must press the stock evenly along the whole length of the fallers. The nip must close, draw and finish its draw before the fallers begin to drop. The jaws of the nip must fit all the way across or tufts will be made in the noil.

The fallers in the finishing boxes should be kept in good order. All split pins should be removed as soon as they are seen or trailing fibers will show in the top. The slivers from the first box should be made heavy enough so that only two of them will be required for each head of the second finisher. These are fed one over the other through a double guide, Fig. 8, and without matting, giving a more even blend of the long and short fibers. When the stock is wound into a ball, an additional bar set well above the center of the funnel, Fig. 9, of the gill box, folds the edges of sliver and thus prevents all clicking of the fibers as the balls are being unwound.

All damping motions for bringing the stock up to trade standards of moisture should be fixed on the first finisher, so that in passing through the second box, the water may be evenly distributed. The best system is to have a brass roller, running in a tank, set as near to the front roller as possible.

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

Translated and Revised by Samuel S. Dale

This Series began in July, 1911

Weaves for these fabrics are drafted by first coloring the binding warp threads, to distinguish them.

The weaves for the different textures are then drafted in the remaining spaces.

The stitching warp threads are then raised above all the back picks.

These stitching threads are next raised above certain face picks (dotted squares), and lowered below certain back picks, so as to bind face and back together.

If the stitching threads are in the filling, the face warp threads are all raised above them. Then a back warp thread is raised (dotted squares) and a face warp thread lowered below a stitching pick (cross squares) to bind the face and back fabrics together. These stitchers are brought to face or back only where the adjacent threads are in a position to conceal them.

Figs. 1472 to 1484 show different weaves of this class. The accompanying cross sections make them the more easily understood.

(Copyright, 1914, by Samuel S. Dale.)

Fig. 1472 is a double cloth, each weave being a 2 up 2 down twill. After every 2 face and 2 back warp threads, a binding thread is inserted; the numbers of the warp threads in the longitudinal section, Fig. 1473, correspond with the numbers in Fig. 1472. The dotted line, not numbered, is the second binding thread, which is thread 10 in Fig. 1472.

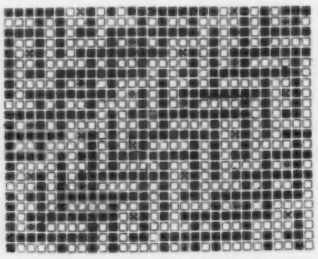


FIG. 1475

Fig. 1474 shows two 3 up 3 down twill weaves stitched with 1 binding warp thread after every 2 face 2 back threads.

Fig. 1475 shows a 3 up 1 down twill face and 3 up 3 down twill back stitched with 1 binding warp thread after every 2 face and 2 back threads.

Fig. 1476 shows a 3 up 3 down twill face and 2 up 2 down twill back stitched with 1 binding warp thread after every 2 face and 2 back threads.

Fig. 1478 and the corresponding cross section, Fig. 1477 show two 2 up 2 down twills

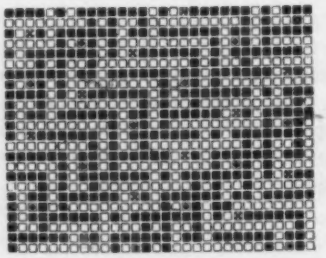


FIG. 1476

bound together with an extra pick following every 2 face and 2 back picks. The picks are numbered the same in both draft and section.

Fig. 1479 is a 2-ply weave for a very thick cloth. Four picks lie one above the other. The face and back weaves are each 6-leaf

FIG. 1479

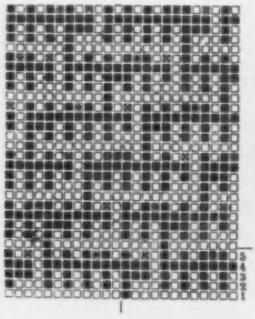


FIG. 1480

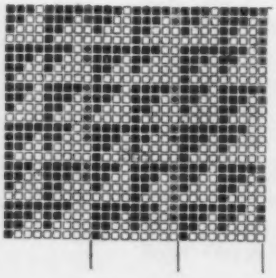
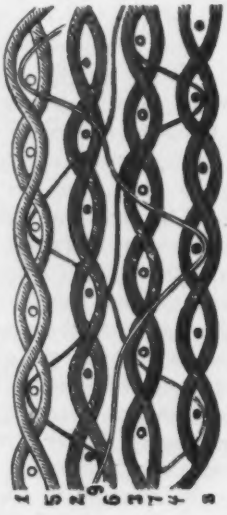


FIG. 1481



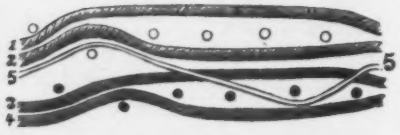


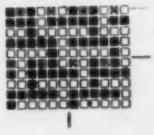
FIG. 1482

satin with back filling. The fifth pick serves as a binding thread, as shown by the cross-section, Fig. 1482. The first 5 picks are numbered to correspond with the first 5 picks at Fig. 1479. The face warp is indi-

cated by the circles; the back warp, by the black dots. This cloth, which is from 1/5 to 1/4 inch thick and used for piano felt, is also made with six sets of filling; of which the sixth is a stuffing pick lying between the face and back, as at Fig. 1465.

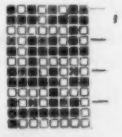
A good weave for woven felt is shown at Fig. 1483. The face weave is a 3-leaf filling

FIG. 1483



1485 1486

FIG. 1484



1487 1488

twill; the back weaves, a 3-leaf warp twill. This brings the face filling on the face, and the back filling on the back, making both sides of the cloth alike.

Every four regular picks are followed by one extra or stitching pick indicated by a straight line at the right. The stitching is effected by lowering a face warp thread below (crossed squares) and raising a back warp thread above (dotted squares) the

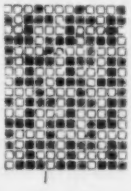


FIG. 1489

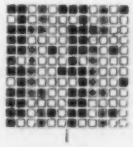


FIG. 1490

stitching pick; this riveting, as it were, both textures to this extra pick.

Another very good weave for heavy felt is shown at Fig. 1484. Face and back are each woven with a broken 4-leaf twill, the face is 1 up 3 down; the back 3 up 1 down. After 1 face and 1 back pick of the regular weaves, comes a binding pick to which both face and back textures are bound as in Fig. 1483.

Fig. 1480 is a weave for a 4-ply fabric with extra binding threads in the warp. Each of the four separate weaves is plain. The position of the stitching warp is shown in the longitudinal section, Fig. 1481, in which the threads are numbered to correspond with the first 9 warp threads of Fig. 1480.

Figs. 1485 and 1486 show the face and back weaves for Fig. 1483; Figs. 1487 and 1488, the face and back for Fig. 1484.

BRITISH OFFICIALDOM AND THE COTTON GOODS EXPORT TRADE

By Our Regular English Correspondent

The British Government has taken no exceptional measures within recent times to promote the export of textiles, although for the advantage of traders at large, certain national services are maintained. There is the consular service, operating in foreign countries, under the control of the Foreign Office and there is what may be called the trade commissioner service, under the Board of Trade. At about half a dozen British Embassies there are commercial attaches who for practical purposes may be regarded as part of the consular corps. There were formerly three or four commercial agents also belonging to the consular arm in which they have since been merged.

The British consular service has never been a purely commercial one. The higher officers have diplomatic duties and the service has many grades, including salaried, honorary and fee-paid men. The number on the roll is necessarily large for British shipping finds its way into all waters and an important part of consular and vice-consular duties is connected with ships. Annually or oftener these consuls report to headquarters on the economic progress of their districts and these reports, conveying the latest available statistics and commercial information from a variety of sources, are published.

The absence of any corresponding functionaries within the British dominions was noticed and in 1899 a Commercial Intellgence Branch was opened by the Board of Trade. Commercial correspondents were appointed in all the different countries of the Crown and once a year they send home very much the sort of report that would be expected from men of their condition. Like the professional consuls they are men destitute as a rule of commercial experience and their principal duties are to act as collectors

of customs, treasurers or secretaries in some colonial islet. In 1900 an Advisory Committee on Commercial Intelligence was got to work to co-ordinate the foreign and colonial trade reporting services and to bring the consuls up to date in their methods. This committee is at present composed of 28 members, of whom ten are officials and the remainder representatives of different commercial interests. The representation of textile interests is stronger now than formerly and the committee includes Sir Algernon F. Firth, carpets; Henry Birchsnough, formerly a Macclesfield silk manufacturer; William H. Mitchell, dress goods; T. Craig-Brown, Scotch tweeds; Lord Rotherham, cotton yarns; and two representatives of the Manchester export houses; Sir F. Forbes Adams and that critic of the committee, E. H. Langdon, president, Manchester Chamber of Commerce.

The Commercial Intelligence organization forms a link between the consular and the colonial branches and British consular reports are issued with the intimation, "Edited at the Foreign Office and the Board of Trade." The committee early began to experiment with commercial missions, sending one to South Africa upon the conclusion of the war and others subsequently to Australasia and Canada. The commissioners went out in search of information at large, confining themselves to no one trade or subject. Then some of the men who had been sent out on these roving commissions received appointments as British Commercial Agents in the self-governing dominions and subsequently they have been given the more elevated title of British Trade Commissioners. Their concern is still with trade at large and their reports are of an amateurish character. They have their correspondents and agents in the chief cities of the dominions and these officers collate names of local traders in given lines of business and send in cuttings from newspapers and particularly of advertisements showing contracts to let.

The head official of the Board of Trade has recently explained that the aim of the Intelligence Department is to "help traders doing average business and who are sufficiently alert to realize the advantage of the information." The official complaint is that too few avail themselves of its facilities. The Department spends $100,000 a year, without reckoning rent or any portion of the salary list incurred in the central office of the Board of Trade, the commercial department of the Foreign Office or in the diplomatic and foreign service. The Department circulates 5,000 copies of a weekly journal, which, however, has only 200 paid subscribers, and it sends out circular letters to traders whose names are on its list. Perhaps the number of letters is rather larger now than in 1909 when 1,104 were despatched, about fifty copies of each of these being mailed on the average. The service is obviously expensive although the officials venture to think the colonial reporting "very successful." The Secretary did not think it desirable to apply a payment-by-commercial-result system to the salaries of consuls or trade commissioners and said that if such a system obtained in the United States service he was unaware of the fact.

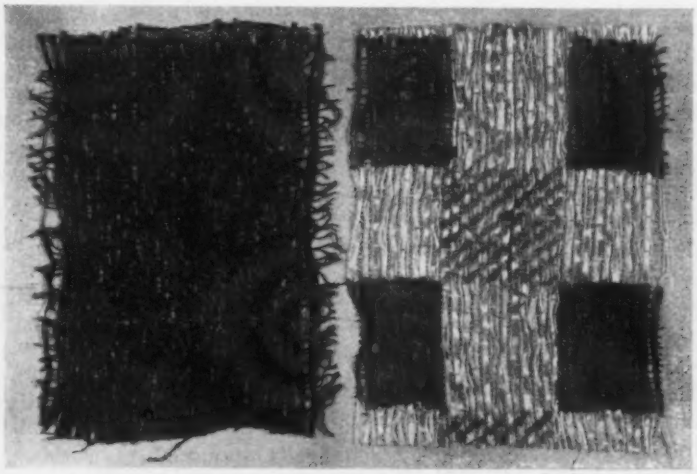
The obtaining of samples of foreign goods has never formed an important part of the work done by Government on behalf of English traders. The Commercial Intelligence Department has, however, a sample room to which articles are sometimes sent. It will perhaps suffice to say that eighteen samples of all kinds were received in the six months ending Oct. 31, 1912; thirteen samples during the six months ending Jan. 16, 1913; fourteen samples during the six months ending Nov. 6, 1913; and nine samples in the two months ending Feb. 5, 1914. The facts have been impartially collected from such records as are at hand and they show how insignificant is this line of effort. Several of the samples have come in conjunction with contract specifications for generally trivial quantities. Others are curiosities or articles sent by would-be sellers in out of the way places. A few casual cuttings sent by a consular agent in Hayti; a vest, a shirt and a pair of overalls picked up in Buluwayo by a high-salaried trade commissioner represent the only spontaneous efforts of the offi-

cials and in the scale of importance these objects are of quite ludicrously small account.

In truth, the Commercial Intelligence Department is useless to those who know their business and are competent to transact export trade. It reports such matters as U. S. customs decisions one to two months after all parties who are really concerned have heard of the matter from commercial sources. The men who do any considerable things in expert business do not depend on it in the faintest degree and the latest recruit obtained by the committee put a very pointed question to it a few months ago. Speaking as head of the Manchester Chamber of Commerce, Edward H. Langdon referred to the system of cash payments and of indirect dealings by which the export trade in cottons has grown up to colossal dimensions upon a thoroughly sound basis. He outlined the several parts played by manufacturer, merchant and banker and inquired why anybdy should wish to change that system and concluded by saying, "I invite the Commercial Intelligence Department to give me an answer to that." The answer has come in his election to the Committee and it is fully to be supposed that that body is now in touch with the practical exporter's point of view.

PRINTING COTTON NETS

Our English correspondent gave in the February issue a description of a new method of printing cotton nets by a process that has been developed in Nottingham, England. We are informed that the American Textile Works, 821 Cherry St., Philadelphia, Pa., has been printing nets for two or three years, the net being used extensively by the millinery and dress trimming trade as well as for curtains. The illustrations show two fabrics printed by the American process, which consists in printing colors on or stripping the color from the goods to form designs. By the English process a paste is printed on the nets to imitate the thread itself and cannot be distinguished from the yarn except by a very close inspection. It will readily be seen that the two processes are quite different.



SAMPLES SHOWING THE AMERICAN PROCESS OF PRINTING NETS

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For many centuries lace making has been one of the most important branches of industry in Saxony. Bone or fassau lace was mentioned as early as 1493 and became a house industry for the people of Saxony during the sixteenth century. The industry has decreased in later years, owing, no doubt, to the cheapness and variety of machine-made lace and the whims of fashion.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

FINISHING SILK KNITTED FABRICS

Editor Textile World Record:

Please advise us as to the best method of finishing the enclosed sample of knit goods.

Finisher (2274).

This is a silk knitted fabric, of fine construction, such a cloth as would be used for cutting up into ladies' silk gloves. It is made with 56 ribs to the inch (as the cloth lies, unstretched), and weighs 1 2/3 ounces per square yard. The material used is a two-thread tram, well twisted, and is pure dye, presumably being dyed in the skein. In the finishing of such a fabric it is necessary that it be stretched in all four directions while drying, or otherwise it will be impossible to avoid bad wrinkling. For such work, automatic machinery does not usually suit, and the following method is largely employed: A tentering frame of simple construction is prepared, say 30 feet long (or as much longer or shorter as may be convenient), and suitably wide for the goods. The rails at the sides and ends of this frame may be equipped with pins or tenter hooks, or clamps may be provided.

The end of the fabric is first taken to the end of the frame, and is hooked on the pins there, being stretched to the width desired. The roll of goods is then carried down to the other end, and, after pulling it to a suitable tightness, it is hooked over the pins at that end.

The cloth is usually cut off there, and, if the length of the frame is the same as the length at which the goods would afterwards be laid on the cutting table, there is no disadvantage in this. The piece need not be cut, however, though of course the pin holes would show across the piece at the place.

One side of the cloth is next secured on the pins, or in the clamps, on one side of the frame. The rail on the other side is arranged to be moved in or out in the usual manner, so this is moved in to a convenient distance, and, after the cloth has been secured to the pins on that side also, it is moved out to the width desired.

The length of the fabric under treatment is thus secured on all sides, but is still damp, so drying arrangements must be provided, but the heat should not be applied till the goods are all stretched out.

Under these conditions heating by both gas and steam presents some difficulties, but heating by electricity is an excellent method, as heat can be turned on or off at will.

When this cannot be done, a method employed in Europe for drying goods on tentering frames may be used to advantage.

For this purpose a metal box, to hold a fire, is mounted on wheels. This box may be made of heavy sheet steel, and may be 8 or 10 inches deep, 24 to 30 inches long, and with a width approximating the width of the goods to be dried. These dimensions can be modified to any extent desired. This box is mounted on an iron frame, which is carried upon four fair sized wheels, preferably with anti-friction bearings. The height of the top of the box may be 18 to 24 inches lower than the level of the cloth to be dried. Underneath the tentering frame, and lengthwise, should be laid a couple of strips of iron for tracks, on which, or between which, the wheels of the carriage should fit so as to run easily. To one end of the apparatus a suitably long and light rope is attached. A charcoal fire is made in the metal box, and the carriage, which is kept standing on its track a little way beyond the end of the frame, is now brought forward towards the goods, and the operator gives it a push with his foot so that it rolls slowly down

the track to the other end where it is brought up by the rope, and it is then pulled back by the rope, the process being repeated till the goods are dry, care being taken to see that they do not get scorched.

Should it be desired to add luster to the fabric, this can best be accomplished by the use of a "tricot calendar," or of a "tuile," both of them giving the goods a treatment which is substantially an ironing.

In the tricot calendar is a hollow heated roll, covered with a heavy seamless felt or woolen blanket, and the cloth is passed between this and the paper roller, or between this and a steel roller if preferred. The cloth follows the covered roller, and the other roll, working in the reverse direction, polishes it.

In the tuile, a similar covered and heated roller revolves in a polished steel hollow, or trough without ends, which also is heated, and as the goods are carried along by the cloth covered cylinder, they are pressed against and polished by the steel surface of the trough in which the roller rests.

In connection with the tentering and drying of the goods, it may be well to point out that for several inches in from the sides—say six inches or so—there will be considerable stretch upon the fabric, so that the finished appearance of the goods at the sides will be different from what it is towards the middle. Glove makers understand this, and in cutting the material into gloves use the sides for certain parts and the centers for other parts.

When the goods come off the knitting machines, they are first picked, that is, they are gone over and any loose ends, or slubs, etc., are removed by hand.

It is very unwise to try to singe them, even if the fabric is hairier than desirable, as the difficulty of keeping such an elastic cloth at proper stretch and evenness, when passing through the machine, is very great.

Generally it is undesirable to give such goods any sizing or dressing in the finishing process, and this is rarely done except for some special purpose. A small amount of sizing might be used if the fabric seems too hairy, which should not be the case if made of proper material. This sizing should be added when the goods are wet out before going on the tentering frame. A suitable machine for dampening the goods would be one with a pair of rollers between which they would be passed, the lower roller revolving in a trough of water, and so conveying the moisture to the fabric.

James Chittick.

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LOGWOOD BLACK

Editor Textile World Record:

I would like a practical working receipt to obtain with the use of logwood a good full jet shade of black on cotton warps, also would like a recipe from a black on silk skeins using logwood as in the case for cotton warps. Oxford (2237).

The dyeing of logwood upon warps is not done to any great extent at the present time as it has been replaced by several kinds of coal tar colors. The best method of obtaining a good fast jet black with logwood is by using the old process of dyeing by which the warps are steeped in sumac over night, using 20 pounds of sumac per 100 pounds of goods. In the morning run through a five compartment machine, with two compartments running with lime water, three compartments sumac water and copperas. This is used for the saddening process. The warps are then taken to another five compartment machine and given one hole of running lime water, washed in another compartment, then given three holes with logwood at a boil. The warps were then saddened and washed, then soaped and washed. This method gave a good fast black on logwood, but is rather expensive for the cheaper lines of work, especially when the call comes for a black which must not cost more than a cent to one and one-half cents for the cheap ginghams and flannelettes. The labor cost is also greater by this method and the beaming and hand dressing cost is more than it should be. There came a demand for logwood blacks that would dye direct, that would be more economical for dyestuff and labor, which would require less handling, cause less breakage, and thereby give a lower beaming cost. The result was the so-called ash black dyed with logwood extract, soda ash and bluestone, generally

saddened with an iron salt such as copperas or acetate of iron and cleared with 1 per cent. of bichrome. By this method good blacks are obtained at a low price and very little handling. There are many formulas for this black, but the principle of dyeing is the same for all.

I have found that the following formula is a good one. To each 100 lbs. of yarn take:

15 lbs. Logwood ext. 51°.
5 lbs. Fustic ext. 51°.
3 lbs. Cutch ext. 51°.
2½ lbs. soda ash.
3 lbs. bluestone.

Boil and add the soda ash slowly; give four runs; let smother between each run; and let the goods lie over night. In the morning run through an iron liquor and then chrome with 1 pound of bichrome per 100 pounds of yarn at 120° F., and wash. For the ordinary black the after treatment can be done away with and the blacks left over night and in the morning wash and soften. With very little practice the dyer can vary the shade to suit his requirements.

The formula for cotton warps can also be used for dyeing silk. There are hundreds of difference formulas of logwood dyeing in the silk trade, but most dyers of silk use the dyeing process for weighting purposes as well as for coloring. Silks are usually dyed in a very long bath, from forty to one to sixty to one, and the baths are kept standing, whenever possible, in order to economize as much as possible. The following recipe is one which is not intended to load up with. Where loading is done the baths of iron and cutch are repeated alternately according to the weight desired:

For 40 pounds silk yarn: Wet out with 2 pailfuls of soap solution, wash well, and sink over night in a bath of nitrate of iron 40° solution and 3 pounds fustic extract at 90°. Work 30 minutes, wash well, give 24 pounds Tw. Raise, wash well with a one pail soap logwood extract at 51°, and turn for one hour. Wash and soften with olive oil or olive oil soap. The above will give a good black, but where more weight is wanted it is well to have a cutch bath and work the yarn in it, returning to the iron bath one or more times. Care must be taken to see that the silk yarn is properly degummed with boiling soap or else uneven results are obtained. These soap baths are always saved and used over again in the degumming, dyeing or finishing of the dyed silk yarns. Amazon.

Logwood black on cotton warps may be dyed by making up a liquor with

25 lbs. logwood extract 51°.
1½ lbs. quercitron extract.

The warps are given two ends at the boil, squeezed and passed twice at 110° F., through a bath containing

4 lbs. bichromate of potash.
2 lbs. bluestone.

Afterwards give a run through the log wood and quercitron again, but only at 160° F. Wash. If a 3-compartment machine is available, each bath can be kept separate. Instead of reversing the warps through the logwood bath, have two such baths of logwood and keep them fresh with additions, making the operation continuous.

A one-bath dyeing method for warps is made up as follows:

5 to 6 lbs. extract cutch.
15 to 18 lbs. logwood extract 51°.
3 lbs. bluestone.
2 lbs. soda ash.

Boil all together, adding the soda ash last. While at the boil, give 4 ends, squeeze and let lay over night and in the morning give two ends in a hot chrome bath and wash.

A first class black upon skein silk with logwood is obtained according to the following method which is the exact process carried out in practice and on a large scale for the production of a full, deep, rich black. It should be understood that there are many ways in which logwood blacks may be built up on silk, and each skein dyer thinks that his own method is the only one worth considering. On the other hand, as black silk dyeing is an art, to be acquired only after many diligent trials and careful observation, it must not be said that this or any other dyeing process is of no value or is incorrect,

if after only one trial defective results are obtained.

To dye a good black, proceed as follows:

The skeins must be thoroughly boiled-off and stripped, that no gum remains, and then well washed to remove all traces of the soap used.

Pass the silk 3 times through a bath of nitrate of iron (so-called "copperas iron") at 15° Tw. and fix the iron by passing through a soap bath. Wash well and then dye blue with 6 per cent. of yellow prussiate of potash, calculated on the weight added to the silk by the iron. As each iron passage adds about 4 per cent. to the weight of the silk, 3 passes add about 12 per cent. Enter the silk at 85° F., give 8 to 10 turns, gradually increasing the temperature to 115° F., and add half as much muriatic acid as of the yellow prussiate. Continue increasing the temperature to 130° F., squeeze and wash.

A gambier bath being ready at 7° Tw. and heated to 125° F., enter the silk and work for 1 hour. Lift and enter the dye-bath prepared with

12% solid extract logwood.
6% solid extract fustic.
5½% copperas.
2½% acetate of copper.

Give 1/2 hour at 150° F., raise to 160° F., and finish the dyeing in a second dye bath containing

12% solid extract logwood.
10% soap.

Work at 160° F. for 3/4 to 1 hour. Finally brighten with the aid of pure olive oil and muriatic acid. Beta-Naphthol.

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WEIGHT LOST IN MERCERIZING

Editor Textile World Record:

What is the normal loss of weight in mercerizing cotton? (4-11-44.)

In mercerizing yarn before bleaching there is a loss of weight which is usually less than 2 1/2 per cent. The causes of the loss are obscure to practical men, as the slight deposit found in the machines after mercerization represents probably a good deal less than the ascertained shrinkage. The loss must be greater than superficially appears, for cotton after mercerizing contains about 5 per cent. more moisture than cotton in the ordinary state. It is natural to associate this loss of weight with the physical changes wrought by the action of the alkali.

Most yarn subjected to mercerizing is not bleached, but is dyed to shades which can be obtained upon the natural gray. Different dyeings give different additions to the weight of the cotton and the dyeing tends to replace some of the lost weight. If the yarn is bleached after mercerizing there is a loss of weight greater than that caused by mercerization; the loss varying with the severity of the process and the condition of the sample. Wessex.

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ANIMALIZING COTTON FIBER

Editor Textile World Record:

Can you furnish me with some information regarding the animalizing of cotton? I understand there is a method of dissolving the silk and treating the cotton with a solution causing the silk to be deposited on the cotton fiber.

Barnet (2272).

The process of treating cotton yarns with solutions of silk or other animal substance so that the threads may possess the general properties of wool and to take up colors similar to wool—in other words, "animalizing"—is not a commercial or technical possibility, at least in so far as being able to produce yarns that meet the fullest demands of fabric makers.

Partially successful attempts have frequently been made by treating cotton, first with tannic acid and afterwards with gelatine solution. Other trials that gave promise were based upon a preliminary treatment of the cotton with gelatine and "fixing" it with alum, and later with formic acid. Further trials have been made by means of alkaline solutions of waste silk, drying the treated fiber and isolating the "fibroin" of the silk by passing the treated and dried fibers through a weak acid bath or through a solution of an acid salt solution.

None of these products are of any importance except to serve as the starting point for further and more elaborate trials. Cotton yarns are known to be treated with solutions

of artificial silk, but the object is to impart luster, and not for the purpose of animalizing. If a thorough animalizing of the cotton could be accomplished, it would be of untold benefit to the makers of woolen and union fabrics, and should return to its inventor or discoverer a magnificent revenue.

Beta Napthol.

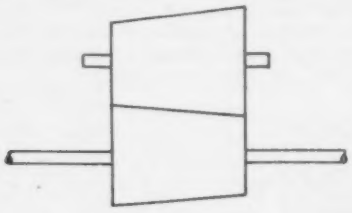
A NON-ELASTIC FABRIC

Editor Textile World Record:

Can you tell me just how the enclosed sample of narrow goods is made shorter on one selvage than it is on the other? The number of warp threads are uniform, but the picks are two less on the long side. I think this is done in the finishing, but know of no machine that will do it.

Keystone (2268).

The method employed to produce a non-elastic fabric which is more closely woven on one side than on the other, is to use a roller on the take-up shaft, the circumference of



which is greater on one side than on the other. This takes the cloth away from the weaving line in the same proportion. The top roller must, of course, be the reverse, as shown in the illustration.

Samuel Brown.

SIZES OF SPINNING TRAVELERS

Editor Textile World Record:

I enclose a few ring travelers, believed to be the smallest and lightest ever made. What are the lightest and what the heaviest travelers that are made?

Wayburn (2275).

Thirteen of the travelers weighed .61 grain. Our English correspondent replies to the question as follows:

The heaviest travelers known to be in regular use in Lancashire are No. 100s. When heavier ones are required spinners place two travelers of the necessary weight upon the ring. The sample sent has been viewed in England as a curiosity and some incredulity has been expressed as to its practical use. The lightest traveler used in England is 23/0. To enable the contrast between the heaviest and lightest to be fully appreciated I am sending you samples obligingly furnished by Cook & Co., Manchester.

R. Regent.

The travelers from Cook & Co. weigh 24 grains each.

SIZES OF BOYS' UNDERWEAR

Editor Textile World Record:

Kindly give us the standard sizes for boys' flat wool shirts and drawers.

Quebec (2292).

A standard scale of measurements for boys' flat wool shirts and drawers was adopted by the Wholesale Dry Goods Association some time ago. We find, however, that in actual practice some of these proportions were not altogether satisfactory. We have from time to time made slight changes in the scale and are asking our manufacturers to make our goods according to the following dimensions which have proved to be most satisfactory:

BOYS' FLAT WOOL UNDERWEAR

Shirts

Sizes	Width	Length	Length Sleeve
24	12	19	13
26	13	21	14
28	14	23	15
30	15	25	16
32	16	27	17
34	17	29	18

Drawers

Sizes	Inseam	Back Rise	Front Rise
24	19	12½	10
26	21	13	10½
28	23	13½	11
30	25	14	12
32	27	15	12½
34	29	16	13

MENS' FLAT UNDERWEAR

Shirts

Sizes	Width	Length	Length Sleeve
34	17	30	19
36	18	31	20
38	19	32	21
40	20	32	22
42	21	33	22
44	22	33	23
46	23	33	23

Drawers

Sizes	Inseam	Back Rise	Front Rise
30	29	15	13
32	29	15	13
34	30	16	14
36	30	16	14
38	30	17	14
40	31	17	15
42	31	18	15
44	31	18	15

Fillmore.

POWER FOR SPINNING MACHINES

Editor Textile World Record:

How much power is required for driving ring spinning machinery? Power (2271).

More power is required to drive ring frames than mules; about 20 per cent. more is the usual reckoning. A number of particulars are given upon the subject in the "Cotton Year Book" where it is stated that in mule spinning of Indian and low American cotton 110 mule spindles to 1 horse power can be reckoned; for medium counts 120 spindles per horse power; for fine counts, 125 to 130 spindles. When preparing machinery is included the rates is given as follows:

Spindles per H. P.

Count	Mule	Ring
Single Roving		
10	45	38
20	55	42
30	60	46
40	64	50
50	66	54
Double Roving		
55	..	45
60	63	43
70	..	..
80	68	..
90	68	..
100	66	..

Wessex.

MARKING KNIT GOODS

Editor Textile World Record:

In your issue of April, 1909, "Salem" recommends the use of coal tar and carbolic acid for marking knitted goods for bleaching. This is a messy way to mark rolls of cloth and one is limited in the marks that may be put on by the number of different stamps on hand. If a heavy soft lead pencil is used to write on the cloth while the fabric is stretched over a board covered with coarse emery paper, the marks will not bleach out and there is no limit to what you can put on a roll. This method is clean and rapid. The marks will fade a little, but a heavy mark is easily read and anyone who tries it will discard all stamps and be glad to get rid of the pad that is so liable to smear everything that it touches, fingers included.

We use an ordinary graphite pencil for marking our rolls and all that is necessary is to make the mark heavy enough. The emery board is used to hold the cloth as the mark will not penetrate unless the cloth is held firmly. It is so easy to mark rolls in this way that we mark every roll with the knitter's name and the machine width, all of which is very useful in the cutting room. I am under the impression that it is the carbon in both the coal tar and pencil mark that resists the bleaching process. The method differs only in the manner of applying it to the cloth. Herkimer.

BUYERS OF MERCERIZED WARPS

Editor Textile World Record:

Do you know of any parties who buy up parts of mercerized warps which have been cut off in splitting or quilling to be used for such purposes as bath-robe cords? S. M. G. (2295).

If any of our readers are interested in this inquiry we should be pleased to put them in communication with the party.

MERCERIZING COTTON YARN

Editor Textile World Record:

We have been having some difficulty in mercerizing, and would be pleased to have the assistance of your experts. We mercerize in the skein, and find that the yarn after mercerizing is darker than before. We clean a large amount of sediment out of the storage tanks every other month, but this does not seem to clear the color of the liquor. The latter has a cloudy appearance, which clears on standing, and deposits itself in the bottom of the tank. On circulating the liquor, however, it becomes stirred up. We also find the yarns are quite harsh, both to the feel and on the knitting machines. We have used all possible means of removing the excess caustic by thorough rinsing and souring with sulphuric acid, and subsequently softening with different preparations, but the harshness seems to remain in spite of this. Waupaca (2294).

The trouble seems to be due to the presence of insoluble substances that contaminate the mercerizing bath. This is confirmed by the statement that the bath clears upon standing, but becomes cloudy when it is stirred. As the mercerized yarn is discolored or becomes darker in color, it is possible that this sediment is composed of iron oxide which may enter the bath as an im-

purity of the caustic soda used or else get into the bath with the water. Several cases similar to this one have come under my observation where the water supply contained considerable quantity of oxide of iron which offered no objection in the ordinary operations of the mill until mercerizing was attempted.

To prove the presence of iron on the mercerized cotton skeins, take a few threads, say ten or fifteen, about two inches long and digest them in a test tube with some distilled water and a few drops of chemically pure hydrochloric acid. Then add a drop of chemically pure nitric acid, cool, and then add one drop of a solution of yellow prussiate of potash. If iron is present, a blue coloration will show at once, and will confirm the suspicion that iron is present.

To overcome the difficulty encountered by this correspondent, he should seek the cause of the sediment, tracing it back to the substances used.

The harshness complained of in the finished yarn may be due to the presence of lime, also from the water, and which will invariably be fixed on the yarn in an insoluble form when sulphuric acid is used for neutralizing. The best acid to use for this purpose is muriatic acid as it forms soluble chloride of calcium, that is very easily washed away from the skeins, and which always leaves the cotton soft. Berwick.

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ROLLER, SLASHER AND CLEARER CLOTH

Editor Textile World Record:

I would like information about roller and clearer cloth. About how much is ordinarily used in a cotton mill, say of 25,000 spindles?

Belhaven (2288).

It is difficult to give a positive answer to such an inquiry because a great many mills order clearers ready made or send clearers to be recovered to a roll coverer who makes a business of such work. In such cases records simply show the number of clearers recovered with no record of the amount of cloth used. In preparing the following answer, however, I have used data showing the number of yards used from supply slips. The cloth was cut up and the work of recovering was done in the room. My record covers a period of more than two years. Repairs were made with the idea of keeping the clearer in good order. I have used many kinds of such cloth, but always in the "grey."

The cloth which I have found best suited for use on stationary clearers is an all wool cloth, thirty-six inches wide, weighing twenty-four ounces per yard. It is heavily napped on one side. In the two years I used sixty yards of this cloth for 396 deliveries of drawing. The clearers were made double and held by wires bent in the shape of staples the width of the clearers. As one-half of the clearer wore out the other half was turned down by hand and brought into use

For 3,496 slubber spindles fifteen yards was used. This included the top leather roll clearers and the bottom steel roll clearers.

For 23,040 fly frame spindles, forty yards was used.

This cloth was used entirely in repair work, to replace clearers that were worn out. Some clearers seemed to last longer than others made from the same material.

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A THICKENING AGENT

Editor Textile World Record:

Can you tell me of some substance that will act as a thickening agent to mix with permanganate of potassium? Also a thickener that will combine with sulphurous acid and peroxide of hydrogen?

Barma (2293).

No successful thickener for permanganate of potassium is possible along the lines usually followed for making thick printing or discharge pastes for the reason that permanganate is such a powerful oxidizing agent, no usual organic thickener as starch, dextrine, or tragacanth, can be used. In thickening permanganates, the only substances that can be properly used consist of mineral thickeners, the most common being china clay. There are several kinds of earths that have from time to time been used by color mixers, but the principle of their use is the same for all. China clay was used by makers of long pile plushes to carry permanganate for discharge tipping, and with very good results, but since the introduction of the stable and efficient soluble sulphite compounds, the use of the permanganate method has lost very greatly its importance.

A thickener for sulphurous acid and also for peroxide of hydrogen comes under the

previous remarks. Any substance that is chemically inert when compounded with the above chemicals will answer the purpose, but organic substances should be kept away, as their presence will only tend to consume rapidly the oxidizing value of them.

As to the stable compounds of sulphurous acid, such as the hyraldites, the following recipe will be found useful:

200 parts hyraldite C extra or C W extra, in 300 parts water, dissolve, and thicken with 500 parts gum water 1 : 1.

The stability of all such compounds, even when made up into thickened printing pastes, is such that they are not decomposed and the effect of the sulphurous active until they have been steamed at a suitable temperature. Beta-Naphthol.

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FORMULA FOR TESTING CHLORIDE OF LIME

Editor Textile World Record:

Please furnish me with a formula for testing a chloride of lime bleach to determine the amount of chloride in the bath. Rockland (2273).

To determine the strength of a chlorine bleach bath requires some knowledge of the Penot method of testing, which is the most convenient testing method to make use of. There will be required to make the test the following reagents and apparatus:

1. A deci-normal solution of sodium arsenite, made by dissolving 4.95 grams of pure resublimed arsenious oxide and 25 grams of pure sodium carbonate in 250 ccs of water, boiling until solution is complete. Cool and dilute to 1,000 ccs.

2. A deci-normal solution of iodine made by dissolving 12.7 grams pure iodine in a cold solution of 18 grams iodide of potassium, and afterwards diluting to 1,000 ccs. This solution of iodine is not used directly in testing the bleach solution, but to check and control the strength of the arsenic solution.

3. A solution of starch made by taking a few grains of starch, wetting with water to make a thin cream, and pouring a few drops of it into a test-tube half filled with water that is actually boiling. This solution when cold keeps for 2 or 3 days and as only one or two drops are required for each test, it may be made fresh each day.

4. Make a supply of iodized-starch paper by soaking good, white filter paper in a solution of .25 gram starch, .25 gram iodide of potassium, .1 gram of sodium carbonate in 50 ccs water. Dry and keep in a clean glass-stoppered bottle.

To check the strength of the arsenious oxide solution. With a pipette, withdraw 10 ccs of the arsenious acid solution and run into an Erlenmayer flask of 250 ccs capacity. Add 50 ccs water, then 1 or 2 drops of the starch solution, and finally, from a burette, add a few drops at a time, the iodine solution, shaking the flask gently. Keep adding the iodine solution until a permanent blue color remains after one minute. If the arsenious oxide solution is of the proper strength only 10 ccs of the iodine solution will be consumed. This fixes the strength of the arsenious oxide solution, which in this case will be equivalent to 0.00355 grams of chlorine for each 1 cc.

To test the strength of the bleach bath, with a pipette, withdraw 10 ccs of the bleaching solution, and run it into a flask and dilute with 500 ccs of water. From a graduated burette run the arsenite solution into the flask, a few drops at a time, testing the solution in the flask after each addition of the arsenite solution by taking out a drop on the end of a glass rod and touching it to a strip of the starch paper, noting whether a blue spot shows. If it does, continue adding the arsenite solution gradually, and continue also to make the drop tests until the last drop ceases to show any blue coloration on the starch paper, which shows that all the chlorine has been taken up. Now read off the burette and note the number of ccs of the arsenite solution consumed.

As each cc of the arsenite solution is equal to 0.00355 grams of chlorine, and assuming that our test has consumed 15.6 ccs, we have $0.00355 \times 15.6 = 55.38$ milligrams of chlorine in the 10 ccs of bleach solution taken for the test, and which corresponds very closely to 85 grains of chlorine per gallon.

By experimenting with one bleach solution for several hours, and then diluting it, say, with 15 per cent. of water, and repeating the trials, the working of the testing method will not be difficult. Louis J. Matos.

Knitting Department

THE KNIT GOODS SITUATION

A trip through the Mohawk Valley last month revealed the fact that although some manufacturers claimed to have all the business on their books that they cared for under the present raw material conditions, yet the aggregate volume of business is considerably behind normal. It is evident that the lines placed on the market at sharp prices such as, fleeces at $3.50 and men's ribbed at $3.62 1/2 have been fairly well absorbed by the buyers, but the regular staple lines on which manufacturers figure a living profit are not so well conditioned.

There are two lines in particular on which manufacturers seem to be anxious for business, men's fleeces at $3.62 1/2 to $3.75 and women's cotton ribbed vests and pants to retail at 50 cents and under. There has been no change in the prices of these two lines since the opening. This indicates that while the makers are anxious for business, they are not so eager and probably conditions will not permit them to cut their prices.

The 25-cent grades of women's ribbed vests and pants are held at 6-pound for $2.00 and there are a number of lines of plain stitch goods, running about 7 pounds to the dozen that are being shown from $3.00 to $3.25. Some of the better known lines, weighing from 7 1/2 to 8 pounds and made of combed yarns are fairly well sold up, but there are a number of manufacturers, making 7 1/2-pound lines at $3.50 that are only fairly well taken care of.

In a number of the mills the writer found that manufacturers are about as much interested over interpreting the new laws governing their plants as they are in selling their product. One manufacturer made the statement that in order to be an underwear manufacturer these days, it was quite necessary to be a lawyer. Many of the new factory laws have been enacted on account of the conditions that have existed in the crowded cities like New York where much of the manufacturing is carried on in loft buildings. It is claimed that these requirements are not necessary to the safety nor comfort of the employes of many of the knit underwear factories in the Mohawk Valley. In addition to these new factory regulations, is now added the new compensation law. These with the high prices of materials, advance in the cost of labor and the fact that orders are not coming to hand very freely have the tendency to make the New York State manufacturers feel that their path is not a rosy one.

Some makers have had their salesmen make extra trips during the past month in an effort to bring their sales up, but so far as we can learn, little has been accomplished. Many of the orders given during the early months of the selling season have not as yet been detailed and although the buyers have not cancelled these open orders, they are, of course, of no use to the manufacturers without assortments.

It is believed that most underwear manufacturers showed very little profit on their 1913 business, and that in general, the prevailing prices do not promise much better for 1914. There has been a decline in the price of spot cotton since the selling season opened, but the premium for grades that can be used has increased to such an extent as to more than offset the difference in the spot cotton conditions.

Business on spring underwear is in fairly good shape. Nearly all the mills are busy making their deliveries and we are told that there are enough duplicate orders coming in each week to keep the market in a healthy condition.

Jobbers from the West and Southwest report that retailers are urging the delivery of all light weight lines. Their travelers report that, owing to the mild weather of the fall and early winter, retail stocks of light weight goods are very low and in consequence, retailers must have their spring bills

shipped promptly in order to take care of the trade at the first sign of warm weather.

Quotations on all lines of light weight goods continue firm at advances of 2 1/2 to 7 1/2 per cent. over prices quoted last July. In spite of these advances, additional orders are coming forward quite freely. Business on combination suits continues to expand at the expense of two-piece suits. We learned that the Fuld & Hatch Knitting Co. of Albany are showing something entirely new in a suit design. This garment is made with an opening from the center of the neck opening, running to a point on both sides about half way between the waist line and armhole, and is fastened with a single button at the top. This looks to be particularly desirable, the one button appealing more especially to children.

Jobber's salesmen who have been on the road report that there is a demand for heavy weight combination suits for women for fall delivery to be made with low neck and sleeveless, and the orders so far taken show that the call for suits made with the Dutchess neck and 11-inch sleeve are greater than those for high neck and long sleeves. The manufacturers of Chalmer's "Porosknit" underwear have adopted a novel method of getting the retailers of the country to show and thereby advertise their product. They have started a window display contest and will award 250 prizes, running from $3.000 to $10 for photographs of the best window displays made of their goods between April first and June 15th. They secure the interest of the window trimmers by personal prizes of from $750 down to $5. The sum total will aggregate $20,000 and in addition, the manufacturers will go to the expense of getting out an album containing the photographs of all the prize winning displays to be sent to each contestant.

Business on flat wool underwear continues good for those who still remain in it. Another mill making this class of goods, namely, the Ormsby Textile Co., has been dismantled during the past year. As there are no new mills for those that are dropping out, it keeps the trade fairly active for the remaining ones.

The Waterford Knitting Co. have cut down their line for 1914, dropping out over a dozen styles, including all camel hair colored goods.

HOSIERY

The month has not developed any great volume of business in hosiery, but on the other hand, no particular weakness has been disclosed.

Manufacturers and agents generally admit that they have not booked as much business as up to this time last year, but all are optimistic and state that no concessions in prices are being made and that with the advent of warmer weather in a few weeks, jobbers and retailers will be forced to come in the market for merchandise.

Lower priced lines are fairly well sold up and the general impression is that those buyers who do not cover early their requirements for 10, 15 and 18-cent grades will find the market against them later on. On better grades where there is a chance of German goods coming in competition, the indications are that there will be no change in prices.

The all fiber boot stockings made at $1.90 as mentioned in our last issue are being sold very largely. They are made with 13-inch boot, with a ravel stop at the top of the boot, made with double sole and high spliced heel and extension toe. The splicing of the sole and toe is plated on cotton. They are being made in white, black, tan and a wide range of high colors. This makes a very light weight, clear, lustrous stocking, particularly desirable for summer wear and will undoubtedly prove to be a very popular line.

High colors are more desirable today than ever and it has almost become necessary for jobbers to carry from 20 to 30 shades in their popular numbers, especially in fiber and silk lines. The call has been strong on such shades as royal, king blue, Copenhagen and Labrador blue, Emerald green, purple, wisteria, grey in all shades from silver to smoke, gold, yellow, champagne, cerise, rose and currant. The latest fad is that the hose and wigs must match, rather too extreme to have a great following.

There is no indication of embroidered

goods coming to the front in a general way, but some imported novelties are being landed in high grade silks embroidered with metal. As the retail price of these is from $5.00 a pair and up, they serve mostly for show pieces, except in the larger cities. There are also some lace insertions being shown in high priced lines. The nearest approach to fancies that might become at all popular are two-tone accordeon plaited silks for men and women to retail at $1.00 and upward. Some high priced silk lace goods are being shown, but only in a limited way.

White half hose for men promise to be very popular the coming season.

SWEATERS

Jobbers report that orders are being received from retailers for sweater coats for fall, but that they bear little resemblance to orders received a year ago. A few rope stitch goods are being sold for men and some fairly good orders are being placed for fine gauge light weight brushed coats for men and women. These are taken with V neck generally and in green and brown heather mixtures to retail at about $5.00. Two-toned brushed coats in light weight are being sold for women mostly with belted backs and with either V neck or narrow shawl collar.

A good business is being done on turbans to match these brushed coats, some trimmed with pompons on the side and others with crocheted covered buttons.

The country appears almost tango mad and women's and misses' coats in tango shades are being sold in limited quantities.

Some retailers are doing a good business on artificial silk and pure silk goods. These are being shown in plain colors and two-toned effects and retail at from $15.00 to $40.00 each. Eighty-inch scarfs to match are being sold at $5.00 to $10.00 each, and turbans of the same material at $3.00 to $6.00. Such combinations as blue and gold, lavender and red, and green and white are taken freely.

Among the more recent novelties in knit coats are the cutaway designs in medium size checks made with wide roll collar and large cuffs. Also the sport coats made with large block patterns with shawl collars and wide belts.

Knit goods departments are also showing some novelties in vests which are becoming quite popular. These are made in Jacquard designs in contrasting colors and trimmed with large crochet covered buttons. These vests are also being sold in fiber and silk, both plain and two-toned colors.

THE MOTOR DRIVE FOR FULL FASHIONED HOSIERY MACHINES

Fig. 1 shows the interior of a mill engaged in the manufacture of "Onyx" hosiery and illustrates some of the advantages of motor drive—such as the absence of belts, cleanliness, good lighting, freedom in arrangement of machines. This installation is especially interesting on account of the automatic control used to adjust the speed of the motors, thus securing a considerable increase of production over a constant speed drive.

FIG. 1. MOTORS FOR HOSIERY MACHINES

In the knitting of full-fashioned hosiery a slower speed is required when shaping than is necessary when knitting straight. If constant speed is used, the limit of output is determined by the maximum speed which can be satisfactorily used when fashioning. With an adjustable speed system by which the speed of the machine can be increased while knitting straight, and reduced when fashioning, it is evident that the production

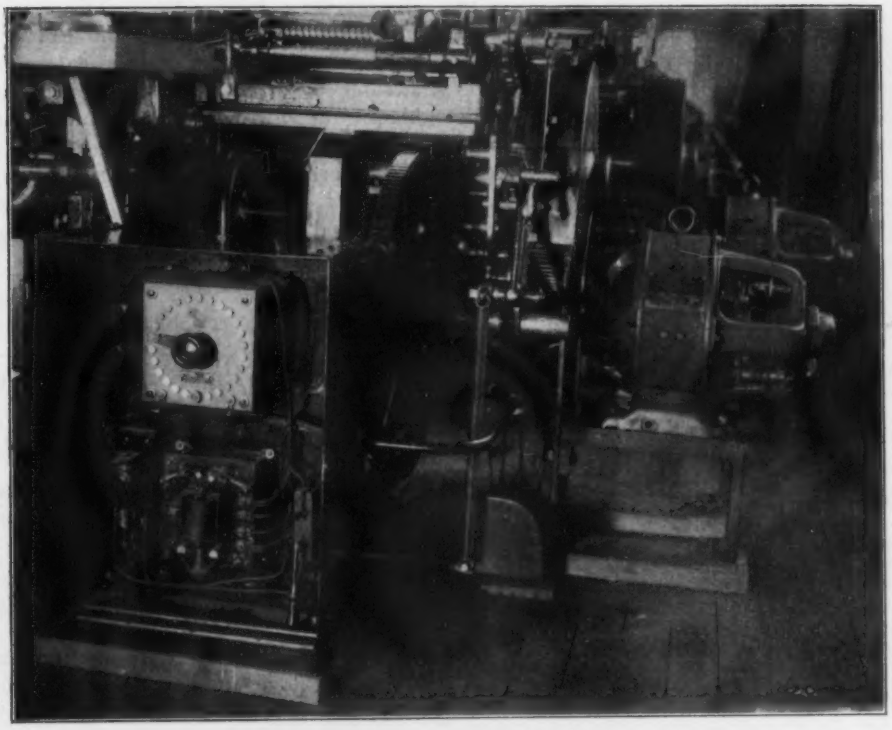

FIG. 2. A WESTINGHOUSE MOTOR APPLIED TO A HOSIERY MACHINE

can be materially increased, especially since the time required for fashioning is only a small percentage of the time required for the entire operation.

In the mill shown in the illustration, there are over 200 automatic stocking machines built from Saxony. Each machine makes 9 pair of hose at a time and is driven by a 1 1/2 horsepower Westinghouse adjustable speed, direct-current motor. The control consists of a Westinghouse textile oil switch, operated by the shipper rod, a speed controller and an automatic self-starter, the last two attachments being mounted in a sheet metal cabinet with a main-line knife-switch and a circuit breaker, as shown in Fig. 2. When starting the machine, the operator moves the shipper rod and closes the oil switch, which automatically starts the motor. In case of accident or trouble with the machinery overloading the motor, the circuit-breaker opens and stops the machine.

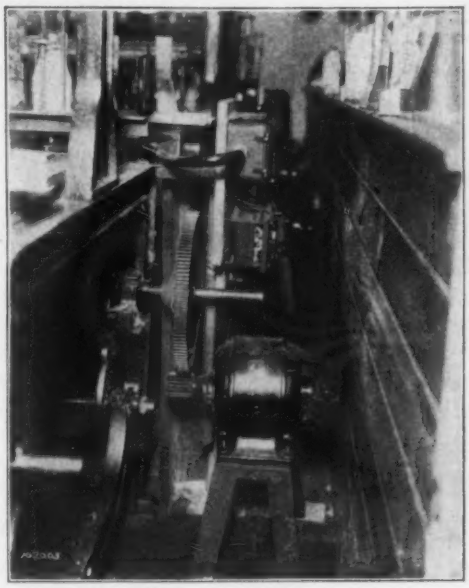

FIG. 3 A WESTINGHOUSE MOTOR GEARED TO A BOBBIN WINDER

By adjusting the controller the operator sets the motor speed at the desired maximum value for knitting straight work. When fashioning takes place, the endwise movement of the main drive shaft of the machine is used to reduce automatically the motor speed. As soon as the fashioning strokes are completed, the machine resumes knitting at the higher speed until fashioning again takes place. This method of reducing the speed is frequently used non-automatically for plating, or reinforcing the feet of silk hosiery with cotton.

Fig. 3 shows a 1/2 horsepower Westinghouse motor geared to a bobbin winder.

MILL EXPERIENCES

Under this head we will publish from time to time stories from practical mill men, telling of vexatious and unusual difficulties which have occurred in different branches of mill work, and how they have overcome them. We invite mill men to send us an account of such experiences. We pay, of course, for all that we use. Facts told just as you would tell the story to a friend are what we want, not fancy writing.

KNITTING MEMOIRS

BY CYMBAL

Some years ago I secured a position in a Pennsylvania mill making all kinds of knit underwear, bathing suits, ladies' skirts and sweaters. There were about every make of a latch needle machine in the mill and none of them were new. The demand for coat sweaters at that time was enormous. The first thing I did was to change over a set of machines for coat sweaters. They had been making a shaped garment on 10 needles to the inch, so it was necessary to change all the cams. The dials and cylinders were cut 4 to 1. These frames were all old style and easy to change. Some of these were four feeds changed from eight. This gave plenty of room for long stitch cams also a long hold down cam. The stitch cams, Fig. 1, would hold down about five needles, and after a slight release would hold the needles again for about seven needles. With the help of a machinist we got the frames running on a cheap grade of cotton coats. For a rack around the bottom we made a double tuck stitch. I made a fancy stripe on a five-inch sleever for a button stay. This was an old invention of mine, and I thought it would be a great thing for coat sweaters. These sweaters were made of two colors, red and black; one side all red and the opposite side red and black with vertical stripes about three needles wide on an eight-cut cylinder. This was a simple process, but it caused a great deal of comment as to where the black

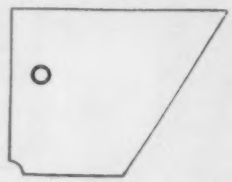

FIG. 1. A STITCH CAM

stitches came from. These goods were hard and stiff as a carpet and for that reason were too expensive to use. This was made on an ordinary five-inch sleever with two feeds, every other cylinder needle out and all the dial needles in. One feed had an extra heavy black yarn below the plating hole in the yarn guide on the tuck stitch which made a perfect stripe as the black threads showed only in the stripe.

There were a set of frames running on

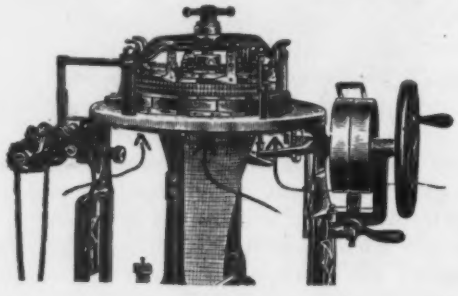

FIG. 2

ladies' light weight shaped goods and these had always given trouble as to the lengths. There would be several lengths in the same roll, with a difference of two inches to a garment in some places. This puzzled me for a long time, as it had others before me. After many experiments I came to the conclusion that the take-up was the cause of all the trouble, for it certainly took more spring to wind up a full roll than it did to start and wind up the first half. There was no way of

regulating the spring to have the same tension all through the roll, so the next best thing to be done was to take off the rolls and put on a basket fastened to the old arms. This basket was made of wire netting, one inch mesh, with an iron band around the top and a wooden bottom. With this arrangement we had no more trouble with short lengths. Some time later I mentioned this scheme to a machine builder, told him of the result and today every frame he turns out has a sheet iron can, instead of a take-up roll.

Many of the frames in the room were very old and worn, one in particular had a worn bed plate and the cam ring was lower on one side. As a result the cloth was tight on one side, so tight that it made holes. The proper place for the frame was the shop where it was built, as they had the facilities for remedying the trouble. We could not spare the frame just then, so I studied the situation over before striking the right solution. By boring and tapping holes for a half inch set screw in three places in the bed plate, as shown at Fig. 2, and counter sinking the top of the holes to set in the brass discs for the can ring to ride on, I could regulate the tension. A little adjusting was needed to get the ring level. This frame was running for three years while I was there, and I believe it is running today.

There were three kinds of stripes running. One was a collarette which threw in silk for a stripe and welt. The second was on the bathing suit frames, and the third was used to put in the stripes and border on ladies' skirts. This striper was a simple device that threw certain yarns in and out at a given time, according to the chain arrangement, and was operated from the take?up arms by a cam the same as the shaping chain. I tried this striper on a coat frame to put in a colored rack around the bottom. The coat frame was cut 4 to 1 and the striper did not throw enough to catch the needles where the opposite yarn broke out and left a skip of about two needles. Many things were tried to overcome this difficulty before we finally located the trouble. There was a short cam on the arms and this gave a quick jerk. On account of being so quick the ends of the yarn would curl up and not feed enough to get to where the other end broke out. I had a cam made as long again as the original. Turning the frame by hand I filed the cam until I got it right, when the skips stopped. During my travels I have come across this same trouble in many mills. In one case a boss knitter had worked for a number of days on a striper using a regular shaping cam before he discovered the remedy. For the benefit of those who may be having trouble with stripers, I will give an illustration, to compare lengths with the regular cam. The dotted lines on Fig. 3 show the old short cam. It will be seen that there is a flat spot about half way up the rise. This flat spot will let the cam rest long enough to have the yarn get straight into the needles before giving the last half of the throw. The flat spot will be found by turning the frame until the striper throws in enough to lay at least two needles length. Mark and file this spot level, say half an inch, then turn the frame again and try again

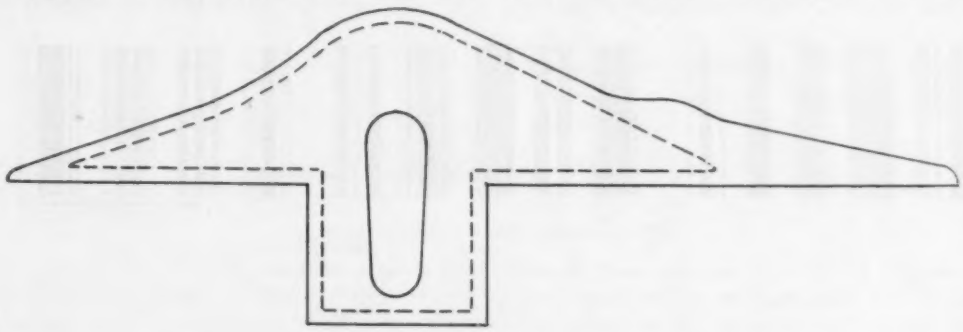

FIG. 3

until there are two distinct throws. There should be one throw with a slight halt in the center. It must be borne in mind that this halt lets the needles straighten out the yarn to avoid curling up.

THE MANUFACTURE OF BATHING SUITS

BY SEDALIA

In manufacturing bathing suits great care should be taken in the purchase of the yarn, which should be the best obtainable and dyed a fast color. If the color is not fast very few customers will accept the garments, regardless of how well they are made. The following combination of colors: Navy blue with a white stripe, with red stripe, with oxford grey stripe and with a royal blue stripe. Oxford grey with black, red, royal, navy or white stripes. Cardinal with black or white stripes. Brown with white stripes and maroon with white stripes, also black with red, white or royal blue stripes. These colors have been the most popular and make up into very attractive garments.

As a rule it is advisable to buy the cotton yarn on cones, to avoid winding; in the end this method is much cheaper. The worsted yarn must, as a general rule, be backwound

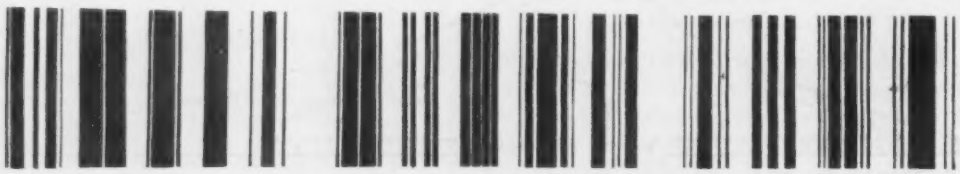

FIG. 1. STRIPES USED FOR BATHING SUITS

following is a list of the various sizes of yarn used in the manufacture of bathing suits, with the average weights of a dozen garments when finished:

Size of Yarn.	Av. weight per doz.
1-15 cotton	lbs. 5¾
1-10 cotton	7¼
1- 6 cotton	8½
2-30 worsted	7½
2-24 worsted	8⅝
2-18 worsted	10¾
2-12 worsted	13¾
2-13 worsted	13

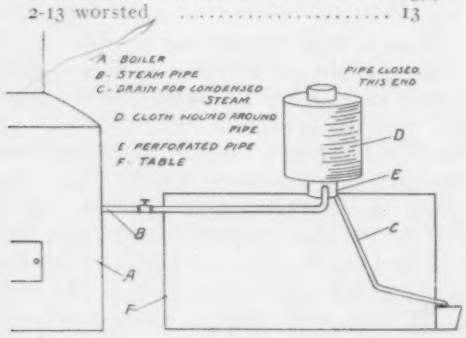

FIG. 2. METHOD OF STEAMING THE CLOTH

There are a number of other yarn sizes which are adapted to the manufacture of bathing suits, but those named are usually used in making the most popular sellers. Bathing suits are generally made with the and moistened over a roller which revolves in a trough half full of a solution of lard oil, soap, paraffine and water. This imparts great elasticity and makes the yarn much better for knitting.

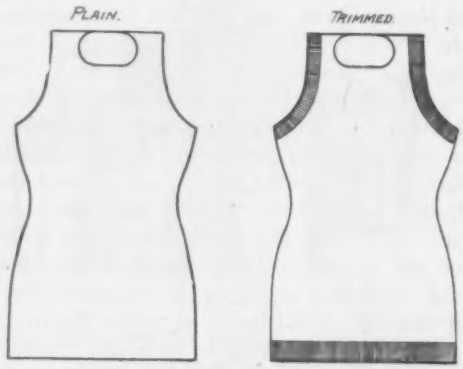

FIG. 3. A BATHING SUIT PATTERN

In making striped suits, the cloth should be knit in lengths as this makes it much easier to handle in the cutting room and more convenient when ordering cloth from the knitting room. These lengths should be knit as follows: Shirt lengths, 68 inches long; trunk lengths, 51 inches long. One shirt length will cut two garments which will finish 31 1/2 inches long and have a 1 1/2-

inch hem on the bottom. This is the standard size for men's bathing shirts. One trunk length will cut two pair of trunks and they will finish 19 inches long with a 6 3/4-inch inseam, which is the standard length.

One of the features of manufacturing bathing suits is to have a good assortment of stripes. A number of manufacturers do not have a very good assortment owing to their using spring needle machines in their

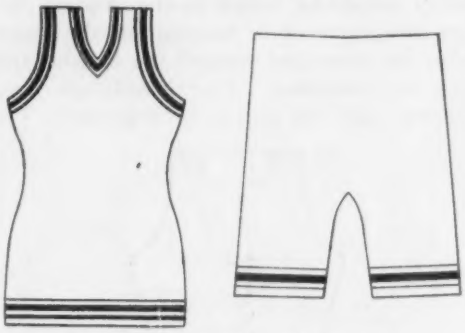

FIG. 4. A BATHING SUIT PATTERN

mills when all the striping must be done by hand. This has been overcome recently by the invention of an automatic striper which can be attached to a spring needle machine. Fig. 1 shows some bathing suit stripes which have been quite popular.

After the cloth is knit it should be steamed and allowed to set several hours. There are several ways of steaming knit cloth. One way is by building a box about 4 feet square with a steam pipe running into it. The only opening in this box should be the lid and when this lid is down it should fit rather snug. A shelf built of boards about 3 inches wide and laid about 2 inches apart will finish the steam box. The cloth should then be laid in folds, placed on this shelf and the steam turned on. It is advisable to have the lid of this box lined with several layers of cloth so that when the steam condenses it will not wet the cloth. The steam should be very hot and should be turned on for about fifteen minutes. The cloth should then be allowed to set for several hours so that the moisture will not escape.

Still another method of steaming is by using a galvanized iron pipe about 6 or 8 inches in diameter and a few inches wider than the cloth. This pipe should be closed on one end and the sides punctured with small holes. The pipe should then be covered with a piece of thin cloth, preferably knit goods. The cloth to be steamed is then rolled on this pipe and in case the stripes have become uneven they should be straightened during the rolling operation. The cloth should then be placed over a steam pipe which is erected as shown in Fig. 2.. In using this method the cloth should also be steamed about 15 minutes and allowed to set for several hours. This operation shrinks the cloth and sets the colors. It also prevents the cloth from curling when being cut. During the steam-

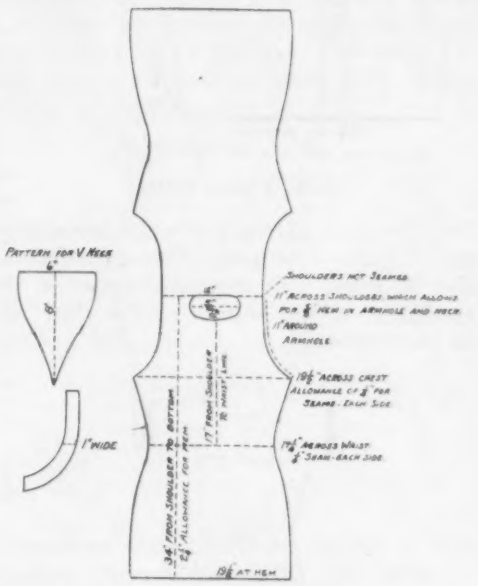
PATTERN FOR V NECK
6"
8"
1" WIDE
SHOULDERS NOT SEAMED
17" ACROSS SHOULDERS, WHICH ALLOWS FOR ½ HEM IN ARMHOLE AND NECK
17" AROUND ARMHOLE
19½" ACROSS CHEST
ALLOWANCE OF ½" FOR SEAMS - EACH SIDE
17" FROM SHOULDER TO WAIST LINE
19½" ACROSS WAIST
½" SEAM - EACH SIDE
34" FROM SHOULDER TO BOTTOM
½" ALLOWANCE FOR HEM
19½" AT HEM

FIG. 5. A BATHING SUIT PATTERN

ing process the cloth will become slightly moistened. For this reason it is advisable to let it set several hours. Whenever possible it is a good idea to press the cloth before cutting. The cloth can be pressed either on an underwear press or through a hot mangle. The mangle is much better as it gives a better finish and larger production, and is more easily handled. The cloth is now ready for cutting.

The cutting operation is a very important

one and calls for great care, as it is impossible to make a good looking garment when it is cut poorly. As in the case of the stripes, a varied assortment of styles is necessary. The following are some very good styles which have proved quite popular:

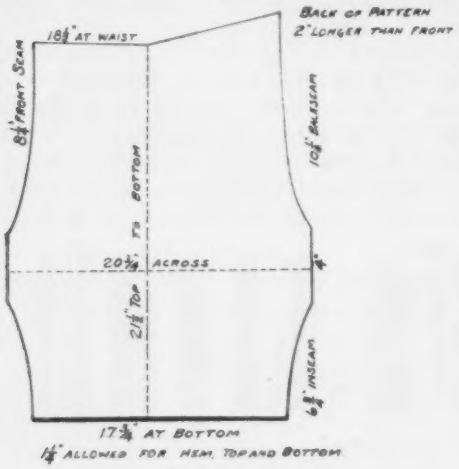

FIG. 6. A TRUNK PATTERN

The sleeveless garment which is made altogether plain or striped. This garment can also be made with trimming sewed in the armholes, on the bottom of the shirt and on the bottom of the trunks. Fig. 3 shows

FIG. 7. A QUARTER SLEEVE GARMENT

this garment, plain and with trimming sewed on. Another good variation of this style is the striped armhole and striped V neck, as shown in Fig. 4. This garment, while something new, is very attractive and will no doubt be a big seller the coming season. It is made by knitting the striped pieces separately and then sewing them in. Fig. 5 shows the patterns used in making the sleeveless garment, size 40. This cut shows the shirt when cut with a round neck. At the left of this cut are patterns which are used in making the V-neck and trimmed armhole.

The sleeveless garment should not be seamed on the shoulder and the shoulder straps should not finish any more than 2 inches wide. In making the sleeveless garment with the trimmed armhole the trimmings should be sewed in the armhole before the garment is seamed up the sides. After the sides are seamed the bottom and neck are hemmed. The threads are then trimmed and the garments inspected. The

FIG 8 PATTERN FOR A COMBINATION SUIT

trunks are usually made the same. Fig. 6 shows a trunk pattern with exact measurements for size 36.

While the sleeveless garment is the most popular quite a number of beaches have placed a ban on it owing to the low cut of the armholes. This, however, is overcome by making a quarter sleeve garment, as shown at Fig. 7. The measurements given are for size 40. This garment can be trimmed the same as the sleeveless garment and some very good results are obtained. It fits much better when the shoulders are slightly slanted, making it necessary to have a seam on the shoulders.

Another garment which has been quite popular is the one piece combination suit, shown at Fig. 8, size 40. This garment,

which is a combination of shirt and trunks is usually made plain. In making this garment it is necessary that the measurement from shoulder to crotch be exact. This garment opens on the shoulder and is finished with buttons and buttonholes. This is done by cutting the shoulders on the back about 1 1/4 inches higher than on the front, and facing the underside of the front and back shoulder with a piece of cambric or other

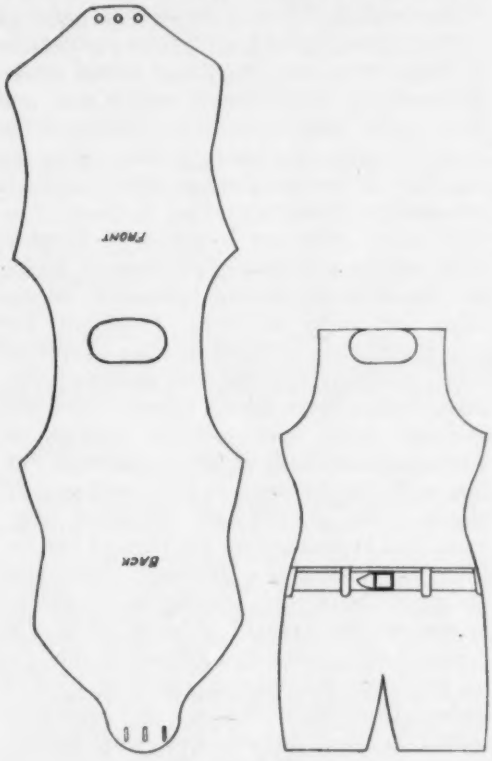

FIG. 9

facing material. This style can also be made in the quarter sleeve, but there are so few calls for it that it has practically been abandoned. The measurements for the combination suit are the same as for the sleeveless garment.

The belted suit is also becoming quite popular. This is made as is shown at Fig. 9. The trunks for the suit are finished the same as in the other styles with the exception of having six belt straps evenly distributed around the waist line. The belt is of web and is stitched to the trunks in the back and has a heavy nickled buckle. The shirt is cut as shown at the left of Fig. 9. This suit has gained in popularity on account of the fact that the shirt also serves as a supporter. There is a patented garment made similar to this, but the garment described here does not conflict with this patent. The garment shown at Fig. 9 is made with three buttonholes, and when made properly makes a very neat garment.

CORRECTION

The table of sizes of sweater coats published in our February issue contained a clerical error. Following is a corrected list of the sizes which were recommended in a tentative way by the Jobbers' Association of Knit Goods Buyers at their New York meeting on January 12th:

Men's Sweater Coats

Size	Width	Length	Sleeve
34	16	27	21
36	17	28	21
38	18	29	22
40	19	30	22
42	20	31	22
44	21	32	23
46	22	32	23

Boys' Sweater Coats

24	11	18	13
28	12½	19	13½
28	13½	20	14
30	14½	21	16
32	15	23	19
34	16	24	20

Tradition states that the culture of silk began in China in 2700 B. C. The Emperor Justinian introduced the silkworm into the Levant in 555 A. D. and from the ninth to the sixteenth century the production spread from the north to the south of Europe.

The smallest sheep in the world are those kept in the Isle of Man. One hundred years ago they weighed on an average 20 pounds when three years old, having four horns and sometimes five. The sheep have been improved considerably since then, but are still much smaller than other breeds.

Dyeing, Bleaching, Finishing, Etc.

INFLUENCE OF DYEING AND FINISHING ON WOVEN FABRICS

By Eber Midgley before the Huddersfield Textile Society

During the dyeing and finishing processes, all woven fabrics aiter to some extent in appearance, handle, strength, and elasticity. The degree of alteration is entirely due to four factors: 1, The type and quality of raw material constituting the fabric. 2, Type and structure of warp and weft yarns. 3, Structure of the cloth, and its setting in the loom. 4, Particular treatment and degree of treatment imparted to the cloth during dyeing and finishing.

During the finishing of some types of goods, marked changes take place in the build, appearance, and general character of the cloth. A typical example is provided in the case of a luster dress fabric made to certain loom particulars. The plain weave of this cloth in conjunction with the fine cotton warp, 2/80s, and the comparatively thick mohair weft, 1/14s, results in a cloth of a warp rib structure: that is, the warp performs all the bending, and the weft is practically a straight condition. These conditions account for the slight variation from loom width, 49 3/4 inches, to grey cloth width, 49 inches, and the excessive take up of warp during weaving (70 yards to 61 yards).

The finishing particulars are to produce a bright or lustrous appearance, and the processes during finishing are to be of such a character as to develop the natural lustrous properties of the fabric. The cloth as received by the finisher presents much evidence of the non-lustrous cotton warp, while the lustrous weft is partly submerged, by the reason of its being laid straight in the centre of the fabric.

If the maximum degree of luster were to be developed, the appearance of cotton has to be eliminated as much as possible. To attain this, the cloth is drawn out in the direction of the cotton warp during the first process of crabbing, the aim being to pull the warp as straight as cloth structural conditions would allow. Such action brings the lustrous weft on to the surface of the cloth, causing the fabric to reflect light to a much greater degree, and in consequence greatly enhancing its lustrous properties.

The crabbing process, best described as one of setting or fixing, imparts a definite position to the warp and weft of the fabric, preventing a displacement of threads and picks in the subsequent manipulation of the cloth. Crabbing or fixing is essential in the finishing of goods composed of materials possessing different shrinking property. Unless union cloth are crabbed thoroughly, there will be a tendency, particularly during the scouring and dyeing processes, for the fibers and yarns to shrink irregularly and give the fabric a crimped or cockled appearance. Consequently the first process in finishing union dress fabrics (cotton warp and worsted weft) involves: (1) Pulling or stretching the cloth in length; and (2) Setting or fixing the warp and the weft at right angles. The process calls for much judgment and experience on the part of the finisher, as crabbing is a treatment that makes or mars the cloth. Insufficient stretching means—in the case of a luster cloth—the presence of non-lustrous cotton on the face of the structure, and a resultant lack of luster. Over-tensioning or over-stretching results in warp threads becoming broken, making "cracked" ends. The drawing-out of the fabric in length totally alters its build: what was originally a warp rib structure becomes a weft rib structure.

During dyeing and finishing all fabrics alter in their dimensions, and vary in this respect, according to the contracting and shrinking properties of the materials and yarns employed, to the structure of the fabric, and to the treatments applied during finishing. In the case of all wool cloths, each of the mentioned factors comprise so many features that influence the shrinkage of the

fabric, and these are so numerous that the alteration of length and width from loom to finished cloth varies considerably.

On the other hand, the various types of union dress fabrics, cotton warp and worsted weft, will, when classified, be found somewhat similar in constitution, and are subjected to about the same finishing processes. In consequence there will be more uniform variation of the dimensions. A conclusion had ben arrived at that the elongation on an average from grey cloth to finishd cloth length is 12 1/2 per cent., and a corresponding contraction is developed from loom width to finished width.

Variation of a Luster Cloth After the Various Finishing Operations

	yds.	in. wide	lbs.
In Loom	70	49¾	..
1. As received by Finisher	61	49	24
2. After Crabbing	67	44	22
3. After Dyeing and Tentering	67	44	22.6
4. After Singeing	67	44	22
5. After Pressing	67	44	22

Loom Particulars. Warp: 2/80s Black Cotton, 40s reed 1s. Weft: 1/14s Mohair, 46 picks per inch (Grey Cloth in Loom). Dye: Black. Finish: Bright.

TENDERING DURING FINISHING

The tendering of fabrics during the processes of dyeing and finishing is an important subject for investigation. The strength of a wool cloth decreases during the crabbing and scouring processes—due, no doubt, to the detrimental action of steam in the crabbing, and to the alkalis employed for scouring, as well as to the high temperature. Acid or alkaline solutions or even pure water are capable of dissolving the substance of the wool fiber. The solutions named undoubtedly attack the wool fiber to some extent during the processes of crabbing, scouring, dyeing, and permanent finishing, and any decomposition results in the fabric possessing less power of restraint.

Influence of Finishing Process on Tensile Strength

Strain in pound	Warp way	Weft way	Mean
1. Grey Cloth	133	93	113
2. After Crabbing	128	80	104
3. After Scouring	122	72	97
4. After Milling	130	67	98
5. After Raising and Cutting	125	65	95
6. After Dyeing and Tentering	129	69	99
7 After Cutting and Brushing	126	67	96
8. After Dressing	129	67	98
9. After Permanent Finishing.	123	65	94

Each result an average of 20 tests.

Loom Particulars. Warp: 2/56 Botany, 104 threads per inch. Weft: 40 skeins woolen, 100 picks per inch. Weave: Double 2/2 twill. Loom width: 69 3/4 inches. Vicuna Finish.

LOSS IN WEIGHT

Fabrics composed of wool yarns lose in weight, to some extent, during the dyeing and finishing processes. In the case of worsteds, the chief loss in weight occurs during the process of scouring, during which the impurities are expelled. The impurities consist of oil, of which the Bradford Chamber of Commerce had recently recommended a standard allowance of 3 1/2 per cent. in tops, and the sizing which might have been added to the warp threads to improve their weaving property; also the filth contracted during manufacture. A certain amount of fiber is lost in milling, raising and shearing processes.

As all worsted cloths contain about the same amount of impurities when subjected to about the same treatment during finishing, there is an opportunity of standardizing the amount of loss in weight. The conclusion arrived at was that all worsted submitted to a clear finish and not subjected to any weight adulteration or loading would sustain a loss in weight of about 6 per cent. While dealing with the loss in weight of worsteds during dyeing and finishing, it had to be mentioned that in some instances the finished cloth was heavier than the grey cloth, owing to artificial weighting.

ARTIFICIAL WEIGHTING OF WORSTEDS

1.—2/2 Twill. Grey Cloth: 58 3/7 lbs., 64 47 yds., 64 ins. 58 3/7 — 6% = 55 lbs. Finished Cloth: 59 5/7 lbs., 64 2/7 yds., 59 4/7 ins. 59 5/7 lbs. — 55 lbs. = 9% amount of loading.

2.—3/3 Twill. Grey Cloth. 82 1/6 lbs., 66 yds., 65 1/2 ins. 82 1/6 — 6% = 77 lbs. Finished Cloth. 83 1/2 lbs., 64 yds., 59 5/6 ins. 83 1/2 lbs. — 77 lbs. = 9% amount of loading.

Wool fabrics, by reason of their hygro-

scopic properties, contain moisture, and on this account the goods are most conveniently weighted with hygroscopic substances, such as zinc, and magnesium chlorides. These agents have great affinity for moisture, which they absorb from the atmosphere and permanently retain. In addition to the fact that weighting is fraudulent, there is not the slightest doubt of the injurious effect on the wearer of a garment made from weighted material. Perspiration is prevented from evaporating, and in a shower of rain the wearer soon finds that he is wet through, the material being at once absorbent and retentive. Some time ago an association was formed, termed the Yorkshire Worsted Association, for the purpose of protecting the public and the trade generally from being imposed upon by this artificial weighting of cloth. The Association did a great service to the public, and also to the many finishers concerned, as any finisher would prefer to turn out pure goods, owing to the increased trouble and risk connected with artificial weighting. Still, the objectionable practice of weighting worsteds has continued in vogue.

The conditioning houses of the Continent and England had fixed the following standards or "regains" of moisture on absolute dryness: 1, 16 per cent. for scoured wools. 2, 14 per cent. for noils and wastes. 3, 18 1/4 per cent. for worsted yarns. 4, 17 per cent. for carded woolen yarns.

There is no standard for the weighting of worsted fabrics. If it is essential to standardize the amount of adulteration in the form of moisture in scoured wools, tops and yarns, is it not essential to standardize the adulteration contained in worsted cloth? The public might be further protected from the objectionable practice of artificial weighting, if the authorities of the conditioning houses would establish a standard of moisture in worsted cloths. Then questionable goods could be tested for adulteration, as in the case of loose wool, tops and yarns, and a report provided as to the purity of the cloth. In normal conditions a worsted cloth contains about 14 per cent. of moisture. The weights and dimensions of cloths made from woolen yarns altered from the loom to finished cloth more than any other type of texture.

LOSS IN WEIGHT. WOOLENS

To assist the process of preparing and spinning a woolen yarn, from 5 to 15 per cent. of oil is employed. This large variation is primarily due to the quality of the material being spun, and to some extent to the indiscriminate manner in which the oil is applied. As a rule, the best quality of woolen yarn contains the least amount of oil, and the lowest qualities, such as mungo, the largest amount.

Generally speaking, the treatment imparted to a woolen cloth during finishing is much more severe than that given to the ordinary worsted. Further, the structure of a woolen thread is different from that of a worsted. This accounts for the finishing process having different influences upon worsteds and woolens. Having these features in mind, it will be recognized that the loss in weight incurred during the finishing of woolens varies considerably, and is more than that incurred during the finishing of worsteds.

NEW EFFECTS

A cloth finisher, being supplied with a suitably constructed cloth composed of material possessing good felting and shrinking property, is able to produce a number of effects which make the cloth different in handle and appearance. During the last few years, wonderful strides had been made in the dyeing and finishing of woven fabrics. This section of the industry offered more opportunity for original research and experiment than any other. The dyer and finisher has been responsible for producing new effects and for providing means for the production of standard effects and styles more economically.

The products of the dress goods, stuffs, and lining trade, were originally composed of worsted material, or cotton warp and worsted weft. Owing, however, to recent developments in mercerizing cotton, the above-mentioned trade today includes a large variety of goods made entirely from cotton mercerized during the stages of fin-

ishing. Originally lining cloth known as "Italians" were composed of cotton warp and fine botany weft: at the present time this structure is being superseded to a large extent by a cotton fabric, which, during finishing, is mercerized and schreinered, whereby a luster is developed much superior to that obtainable in the original and more expensive make of cloth. Cotton cloths and yarns are mercerized either for luster or shrinkage. In mercerizing for luster, shrinkage must be prevented; no luster is developed where there is shrinkage.

Crimped or crepon fabrics were originally produced by combining shrinkable and unshrinkable materials, such as botany and mohair or silk yarns. When a structure composed of such materials is allowed during the scouring process to develop its natural shrinking property, the shrinkable botany material contracts and the unshrinkable mohair becomes slack and develops in the fabric a corresponding slack and crimpy place. In the first instance these crimp effects are limited to stripes, but a further development is the production of what are known as figured "blistered" styles. Owing to the high price of the botany material required to produce this particular effect, there is a natural demand for the same type of fabric at a lower price. The discovery that a lower price material, cotton, could be made to shrink, was responsible for cotton being substituted for botany.

During the finishing of this cloth the process of mercerizing played a very important part. The fabric was subjected to a treatment with caustic soda of suitable strength, so as to develop about 20 per cent. of shrinkage in the cotton yarns, while exercising little or no influence upon the mohair material.

An economical method of producing colored stripes and checks in all-wool fabrics is illustrated in the case of employing dye resist yarns. Splendid results had been attained by treating certain dyestuffs after application upon worsted yarns in such a way that the dyed material will resist the action of the dyes. The ground of the texture is composed of grey or undyed material, and the striping or checking of the resist-dyed material. To obtain the requisite color of ground material, the material is piece-dyed.

Another economical method of producing colored worsteds is by employing chlorinated and unchlorinated grey yarns. The advantage of chlorinated over unchlorinated yarn is its increased dyeing properties. Its use may be found in the producing of mixture effects by piece-dyeing, employing twofold yarns, one thread of which has been chlorinated and the other not chlorinated. In the subsequent piece-dyeing, the chlorinated material dyes a much deeper shade than unchlorinated, and thus a light and dark shade effect is produced in the same color on the fabric.

Probably there is nothing more noteworthy in the textile trade than the rapid growth in the use and popularity of artificial silk. Although this material has its limitations, every day seemed to open new avenues for the use of one or other of the five leading types in which it is manufactured, and it is now possible to use the material for both warp and weft. Being so near akin to cotton in its chemical structure, it takes, in many cases, the same dyes that are used for cotton. For the same reason, effects might be produced in piece-dyeing wool and art silk cloths. Different kinds of artificial silk varied in properties and necessitated different treatment during dyeing and finishing.

To obtain a silk finish on cotton goods, the substance of artificial silk is applied in solution. After the solution had been colored the same shade as the cotton, it is applied to the fabric in extremely thin films, and then subjected to chemical and mechanical treatment in order to render it permanent.

BLEACHING COTTON GOODS

Editor Textile World Record:

I was pleased to see that "Hector" read my letter on bleaching cotton goods, to "Clayton," but think he will find that the acid treatment is better, as it starts fermentation of the starches and also loosens the gums. As a result the caustic has a freer action in the degumming of the cloth. He

will also find that the lye requires less time to wash out, and if the valves are in good condition on the keir and the cloth well covered there will be no keir stains. I appreciate the value of soda ash or sal soda for the bleaching liquor, also the use of muriatic acid in souring off.

Please also note that the formula should read 1/4 per cent. instead of 4 per cent.

Palma.

DYEING AND FINISHING SEWING THREAD

BY DR. L. J. MATOS

The art of dyeing sewing thread is confined to a limited number of men who are engaged in that industry, but the principle involved can be generally applied to other branches of dyeings where fine cords or hard twisted threads are handled. Sewing thread dyeing is so closely related to the finishing processes that to consider one without the other is almost impossible. The bulk of the sewing thread upon the market today is dyed with Diamine or direct colors on account of the simplicity of the dyeing process, and also on account of the wide variety of shades that are more readily obtained than by using dyes of other groups. While basic dyes are used to some extent for certain particularly bright shades, only a small proportion of such dyes are used in comparison with those of other groups. The reason for this is that the basic dyes do not penetrate the thread as freely as other dyes. Sewing thread is mostly dyed in the form of skeins in hand kettles. Some mills use revolving skein dyeing machines while Continental thread mills are gradually adopting pressure dyeing machines.

Considering the general methods of dyeing, the most important consideration is to see that the thread is thoroughly boiled out so that it will take up the color evenly from the dye bath. Formerly, it was the general custom to boil out the cotton thread with caustic soda, but immense quantities of thread are now treated with soluble or sulphated oil, which, besides preparing the cotton to take the dye, leaves the thread soft and in a suitable condition for the finishing processes.

Blacks and dark mode shades in sewing threads are dyed with a suitable amount of dyestuffs ranging from 3 to 6 per cent. on the weight of the thread to be dyed, together with 2 per cent. of soda ash and 20 per cent. calcined Glauber's salt. The wetted-out thread is entered, giving two turns, and then turned slowly but regularly at intervals for 1 hour, during which time the bath is maintained at the boil.

Medium shades are dyed with amounts of dyestuffs ranging from 1 1/2 to 3 per cent., together with 2 per cent. of soda ash, 2 per cent. of soluble oil and 10 per cent. of Glauber's salt. The skeins of thread are entered at 140° F., given two or three turns, and turned slowly at regular intervals for 1 hour, during which time the bath is kept at the boil.

Light shades comprising such as require only 1 1/2 per cent. of dyestuff are dyed with 1 per cent. of soda ash, 2 per cent. of soluble oil and from 3 to 5 per cent. of Glauber's salt. The skeins of thread are entered at 100° F. and given 2 or 3 turns. The temperature is then gradually increased to 150° F., turning regularly meanwhile until the shade of the sample is matched. Light shades, when the dyeing formula is once established, means that dyeing can terminate after 3/4 of an hour in the bath. The amount of water in the dye bath plays an important part when working in open kettles, and, as a rule, should be about 2 1/2 gallons for each pound of sewing thread dyed.

Blacks are most commonly dyed with diazotized and developed colors. The most commonly employed types being Diaminogen B, and Oxydiaminogen F F G, diazotized in the usual manner with 3 per cent. of nitrate of soda and 7 1/2 per cent. of commercial muriatic acid. Wash and develop with beta-naphtol or phenylenediamine, or combinations of both, according to the well known processes familiar to all dyers.

Mercerized cotton threads are treated in the same manner with the exception that, as mercerized cotton has a greater affinity

for most dyes of the Diamine group, a slightly decreased amount of coloring matter is required.

The sewing thread sample books of many manufacturers show quite a variety of shades dyed upon bleached thread. Formerly it was the custom in a number of thread mills to effect the bleaching with the old chloride of lime process, but since the introduction of the hypochlorite method and the modern electrolytic process of producing hypochlorite bleaching liquor the old lime bleach is slowly becoming obsolete. The hypochlorite bleach leaves the cotton thread not only perfectly white but free from any haskiness. Where the electrolytic installation has not been introduced the thread bleacher may make his own hypochlorite bleach liquor according to the following method:

Made by acting on a solution of bleaching powder with one of soda ash, according to the following recipe:

100 lbs. Bleaching Powder (Fresh),
50 U. S. gals. Water.

Work into a thick cream or paste by stirring, taking care to break all lumps.

Prepare a second solution as follows:

60 lbs. Soda Ash,
25 U. S. gals. Water.

Boil and add

12½ U. S. gals. Water.

The soda ash solution is poured into the bleaching powder solution, the whole thoroughly stirred and allowed to settle, and the clear top liquor drawn off without disturbing the insoluble residue, which is washed with several changes of water, allowing to settle after each wash, when it is drawn off and added to the main volume of bleach, thus diluting it until it stands at 6° or 7° Tw., and yielding a total volume of about 185 to 190 gals. This solution will answer for most bleaching purposes, but it should be made completely free from remaining traces of lime by adding 2 lbs. of soda ash, and allowing the fine precipitate to settle. This solution is then ready for use.

After bleaching to a proper degree of whiteness the thread is washed thoroughly and made ready for dyeing. After dyeing and drying the thread is reeled and spooled and made ready for the dressing, and while sewing threads of similar numbers resemble each other it is a fact that those in charge of the same operation in different mills use widely differing formulae.

Thread dressing, besides imparting a luster and finish to the thread is also for the far more important purpose of giving increased strength to the thread. This increase sometimes amounts to 22 per cent., while there may be an increase of weight amounting to 15 per cent. or more for blacks and 10 to 12 per cent. on colors and white.

One of the most important constituents of thread dressing is Japan wax and the following is a very effective formula for a composition that imparts a luster of considerable durability to cotton thread:

5 gals. water.
15 lbs. Japan (Carnauba) wax.
5 lbs. sal soda.

These are heated together until the wax has been completely saponified by the soda, after which it is diluted with well boiled starch paste to make 25 gals. Another dressing is made by making a paste with cornstarch in the usual manner, afterwards adding to every 20 gals. of the paste:

7½ lbs. tallow,
7½ lbs. soft soap,

together with 5 lbs. of Japan wax and 3 lbs. of good clear glue, previously dissolved in a suitable quantity of water. By substituting stearin for the tallow an increased luster is obtained. Where a hard finish is desired, cornstarch is generally preferred, although many thread dressers prefer potato starch.

The fear of rancidity occurring from the use of tallow has induced many workmen to adopt paraffin wax with the mixtures, but Japan wax is more generally preferable on account of possessing the valuable property of combining with soap or itself being readily dissolved with soda.

A formula for moderately coarse thread is the following:

120 lbs. potato starch.
30 lbs. rye flour.
12 lbs. paraffine wax.
4 lbs. glue.
To make 400 gals.

The addition of about 4 lbs. of stearic acid causes the above formula to impart a softer finish, while doubling the amount of glue

enables the dressing to give a hard finish.

Some dressers are partial to the use of oils for softening, and while formerly it was the common practice to use cocoanut oil, better results are secured by using sulphated castor oil. Beeswax is used to a considerable extent by continental thread dressers, in combination with gum arabic, which latter substance is of recognized value for imparting a high luster on black thread.

There have been published from time to time a number of formulas for thread dressing, many of which are manifestly unsuited for the purpose. A thread dressing should not be hygroscopic, but on the contrary, should, besides holding its luster, impart a degree of stiffness, a sleazy thread being the least desirable for use by seamstresses either by hand or machine. Since machine sewing requires thread possessing distinct strength in proportion to the diameter of the thread, it devolves upon the dresser to select such ingredients for his dressing formula as will impart luster and strength.

A DYEING MACHINE

The illustrations show an improved reel for a yarn dyeing machine which has recently been patented. The inventor states that the invention is intended to provide a warper beam composed of a series of spiders mounted upon a central shaft; certain of the spiders carrying a series of fixed slats, the other spiders being adapted to wedge outward a series of movable slats, so that the yarn may be wound upon the movable slats when in the extensible position, and then the warper beam may be immersed in the vat. When the dyeing process is partly completed, the extended slats are permitted to move inward under the shrinking action of the yarn, causing the yarn previously supported by the extensible slats to be supported on the fixed slats. This affords more perfect access of the dye liquor to the inner layers of the yarn and any streaky effect, due to continuous contact of the yarn with the slats, incident to the dyeing, washing, or other treatment of the yarn, is avoided.

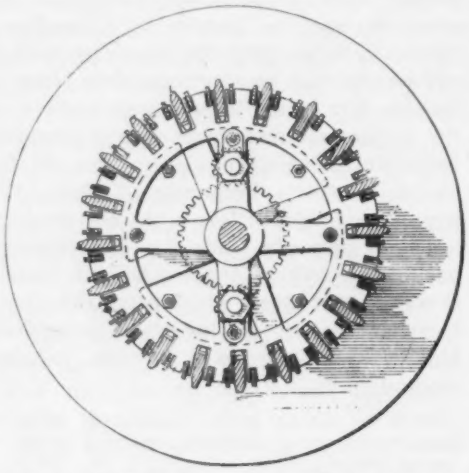

FIG 2. A SECTIONAL VIEW OF THE DYEING MACHINE

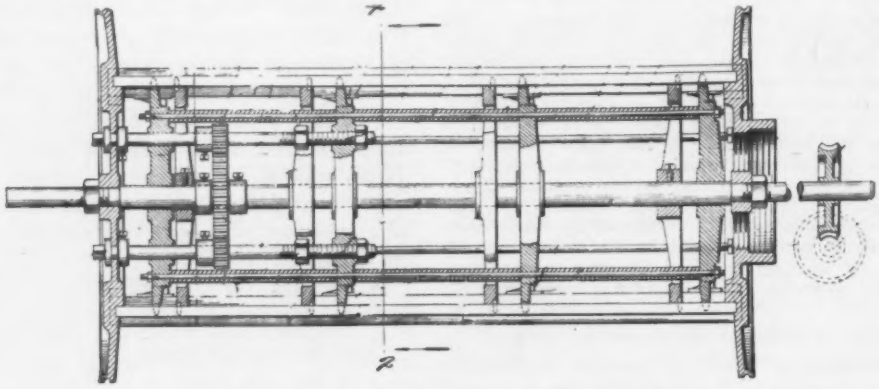

FIG. 1. A VERTICAL SECTION THROUGH THE WARPER BEAM

Fig. 1 is a vertical section through the

warper beam; Fig. 2 shows a section along the line 2—2 of Fig. 1.

The warper beam shaft is rotated by means of a worm wheel. The warper beam is provided with two heads. One of these is perforated to permit the passage of the dye liquor to the center of the beam. The special arrangements are provided for rotating the warper beam and for controlling the flow of the dye liquor and washing fluid, backward or forward.

Mounted on the shaft are a series of fixed spiders to the periphery of which are secured fixed slats, attached to the spiders. These fixed spiders form with the fixed slats and the fixed heads of the warper beam a spool-shaped skeleton frame, entirely distinct from the sliding frame carrying the collapsible slats.

A series of spiders, which slide on the shaft, are connected by rods and are spaced apart by thimbles. These spiders form with the connecting rods and thimbles a frame which slides as a unit on the shaft. This sliding motion is imparted by screw-threads which engage corresponding threads in the spider. The outer ends of the screws are squared and the two screws are connected together by means of pinions mounted upon the respective screws, and the gear mounted on the shaft. Screws turn together and a sliding movement is thus given to all of the spiders. By having two screws on opposite sides of the shaft, any tendency to bind is avoided, as would be the case were a single screw only used to slide the various spiders.

FINISHING BLACK COTTON GOODS

Please advise us if we can obtain a glossy finish such as is on the enclosed sample by using an ordinary calender or is a special calender required?
Almonte (2302).

The calender used for finishing this class of goods is a 3-roll dead set machine with the top roll of steel and the middle roll of paper or cotton, preferably cotton. The calender is heated by steam or gas.

I would run the goods first through the top nip, face side to the cylinder once or twice. The goods are then made ready to run through the cylinder. They are starched heavily, dampened and stretched one inch so when they are finished they will be the right width. The formula for starching is as follows:

170 lbs. dextrine dry,
50 lbs. corn starch,
2 gals. oleine oil,

making 110 gallons. Boil 10 minutes. Run the goods through this mixture and dry. If they are not stiff enough run them through the mixture again. Dry on cans, damp, stretch and calender.

The following is another starching formula that I have found very good:

180 lbs. starch made of
90 lbs. dry corn starch,
90 lbs. tapioca or sago dry,
20 lbs. good softener,

making 160 gallons. Boil 10 minutes. Run the goods through this mixture twice. If they are not full and stiff enough when run through the mixture once, it does no harm to run them through a second time. I have found it a good plan to add about 8 lbs. of chrome to keep the black a good shade.

Demain.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 38

BLACK ON WORSTED YARN

Alpine Black 4 B D on 100 lbs. worsted yarn. Prepare the dye bath with

6 lbs. Acid Black 4 B D.
(Swiss Colors Co., 15 E. 12th St., New York, N. Y.)
10 lbs. Glauber's Salt.

Enter at 120° F., raise slowly to a boil, boil 20 minutes and then add

2 lbs. Sulphuric Acid.

Boil 20 minutes longer and add another

3 lbs. Sulphuric Acid.

Continue the boil 20 minutes and rinse.

Alpine Black 4 B D is an inexpensive black

possessing excellent penetrating and leveling properties and adapted to all classes of wool dyeing and the dyeing of soft wool hats.

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Recipe No. 39

BLACK ON WORSTED YARN

Alpine Black 6 B X on 100 lbs. worsted yarn. Prepare the dye bath with

6 lbs. Acid Black 6 B X.
(Swiss Colors Co., 15 E. 12th St., New York, N. Y.)
10 lbs. Glauber's Salt.

Enter at 120° F., raise slowly to a boil and boil 20 minutes. Add

2 lbs. Sulphuric Acid

and boil 20 minutes longer, then add another

3 lbs. Sulphuric Acid.

Continue boil 20 minutes and rinse.

Alpine Black 6 B X is an inexpensive black possessing excellent penetrating properties, is level dyeing and adapted to all classes of wool dyeing and the dyeing of soft felt hats.

—÷—

Recipe No. 40

BLUE ON WORSTED YARN

Anthrazurine G on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Anthrazurine G.
(Kalle & Co., 530 Canal St., New York, N. Y.)
1 lb. Sulphuric Acid.
10 lbs. Glauber's Salt.

Wet out the yarn and enter at 105° to 125°. Bring slowly (in about 30 minutes) to the boil, boil 45 minutes and add

1 lb. Sulphuric Acid

and boil another 30 minutes.

In dyeing light shades the sulphuric acid may be replaced to advantage by

4 to 5 lbs. Bi-sulphate of Soda.

Anthrazurine G possesses exceptional fastness to light.

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Recipe No. 41

BLUE ON WORSTED DRESS GOODS

Blue on 100 lbs. worsted dress goods. Prepare the dye bath with

14⅜ ozs. Amazo Fast Blue.
(Amer. Dyewood Co., 80 Maiden Lane, N. Y.)
420 grs. Amazo Fast Red 8 B.
56 grs. Amazo Fast Yellow 6 G.
20 lbs. Glauber's Salt.
2 lbs. Oil of Vitriol.

Enter at 120° F. Raise to boil in 20 minutes. Boil 1 hour.

The colors used above are of excellent fastness to light and are recommended for all classes of wool dyeing by the acid method.

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Recipe No. 42

DARK RED ON LADIES' DRESS GOODS

Dark Red on 100 lbs. ladies' dress goods. Prepare the dye bath with

10 ozs. 52 grs. Amazo Blue.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
3 lbs. 13 ozs. Amazo Brill. Red 6 B.
2½ ozs. Amazo Orange Crystals.
20 lbs. Glauber's Salt.
3 lbs. Oil of Vitriol.

Enter at 120° F., bring to boil in 20 minutes. Boil 1 hour, or to shade.

The colors used to produce the above shade are recommended for their level dyeing properties and good fastness.

—÷—

Recipe No. 43

BROWN ON WORSTED YARN

Erweco Alizarine Brown S G on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Erweco Alizarine Brown S B.
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)
10 lbs. Glauber's Salt.
6 lbs. Acetic Acid.

Enter at 140° F., raise slowly to a boil and dye at a boil for three-quarters of an hour, then add

2 lbs. Potassium Bichromate

and boil another half hour.

Erweco Alizarine Brown S B possesses excellent fastness to washing and fulling and is particularly useful in the dyeing of slubbing, loose wool and yarn. It can also be used in the printing of slubbing in conjunction with fluoride of chrome.

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Recipe No. 44

GARNET ON COTTON YARN

Diamine Azo Bordeaux R on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Diamine Azo Bordeaux R.
(Cassella Color Co., 182 Front St., New York, N. Y.)
25 lbs. Common Salt.
1 lb. Soda Ash.

Enter at 120° F. and dye at a boil one hour. Rinse and diazotize in a cold bath made up with

2 lbs. Sodium Nitrite,
6 lbs. Hydrochloric Acid (32° Tw.),

working for 15 minutes and then develop by working 20 minutes longer in a cold bath made up with

¾ lb. Beta Napthol,

dissolved in the necessary amount of caustic soda.

Diamine Azo Bordeaux R gives an excellent shade of dark red possessing very good fastness to washing.

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Recipe No. 45

BLUE ON COTTON YARN

Rhoduline Blue 5 B on 100 lbs. cotton yarn. First mordant the yarn with tannic acid by working for one-half hour in a bath made up with

2 lbs. Tannic Acid (or its equivalent in Sumac Ext.)

and allow to remain in the gradually cooling bath for several hours or over night. The yarn is then taken from the tannin bath, wrung without rinsing and then worked for one-half hour in a bath made up with

1 lb. Tartar Emetic.

When taken from this bath the yarn is thoroughly washed and then dyed in a bath made up with

1 lb. Rhoduline Blue 5 B.
(Bayer Co., 117 Hudson St., New York, N. Y.)

and sufficient acetic acid to counteract any hardness of the water for three-quarters of an hour at a temperature of about 180° F.

Rhoduline Blue gives an exceedingly clear shade of blue with good fastness to soaping and will be found extremely useful in calico printing. Its fastness to chlorine is also very good.

—÷—

Recipe No. 46

YELLOW ON WORSTED YARN

Fast Brilliant Yellow 3 G Con. on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Fast Brilliant Yellow 3 G Con.
(Innis Speiden & Co., 46 Cliff St., New York, N. Y.)
10 lbs. Glauber's Salt.
2 lbs. Sulphuric Acid.

Enter at 120° F., raise slowly to a boil and dye at a boil one hour.

Fast Brilliant Yellow 3 G Con. is a level dyeing color of good brilliancy and fastness and will be found useful as a self color and in production of compound shades.

Recipe No. 47

BLUE ON COTTON AND WORSTED UNION CLOTH

Union Blue 2322 on 100 lbs. union cloth. Prepare the dye bath with

2 lbs. Union Blue 2322.
(Innis Speiden & Co., 46 Cliff St., New York, N. Y.)
20 lbs. Common Salt.

Enter at 100° F., work 20 minutes at this temperature and then raise to a boil.

Boil 20 minutes and work 20 minutes in the gradually cooling bath. Lift, rinse and finish.

Union Blue 2322 is an exceptionally level dyeing color for cotton and wool union piece goods.

—÷—

Recipe No. 48

BROWN ON COTTON YARN

Kryogene Brown R X X on 100 lbs. cotton yarn. Prepare the dye bath with

5 lbs. Kryogene Brown R X X.
(Badische Company, 86 Federal St., Boston, Mass.)
10 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
50 lbs. Common Salt.

Enter yarn at about 180° F. and dye at a temperature just below the boil for about one hour.

Kryogene Brown R X X possesses remarkably high coloring power for a sulphur color. Its fastness to washing is very good.

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Recipe No. 49

BLUE ON COTTON YARN

Toluylene Dark Blue R R on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Toluylene Dark Blue R R.
(Geisenheimer & Co., 189 Front St., New York, N. Y.)
3 lbs. Soda Ash.
20 lbs. Glauber's Salt.

Enter at 180° F. and dye at a boil for one hour, then rinse and diazotize by working for 15 minutes in a cold bath made up with

3 lbs. Sodium Nitrite,
6 lbs. Sulphuric Acid (168° Tw.),

then wring or squeeze and rinse and work one-half hour in a cold bath made up with

1 lb. Beta Naphthol,
1 lb. Caustic Soda (76° Tw.),

and then wash.

Toluylene Dark Blue R R gives a reddish shade of blue, the fastness of which is good for a direct cotton color.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Motor Drive for Hosiery Machines. The Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa., have placed on the market an adjustable speed motor drive, especially adapted for full fashioned hosiery machines. A description appears in this issue.

A Cloth Examining Machine. Birch Bros., Somerville, Mass., are placing on the market an improved cloth perch or examining machine which in described in another part of this issue.

Fire Brick Cement. The Codd Tank Specialty Co., 406 W. Camden St., Baltimore. A cement called "Adamant" and used for laying fire bricks. It is claimed that it welds the bricks together by chemical action, making the wall one mass, which has great durability, prolonging the life of the bricks. It reduces the costs of repairs in boilers, kilns, retorts and cupolas.

Bleaching Machine. The Trautenauer Maschinenfabrik and Eisengiesserei, Trautenau, Germany. A bleaching machine operated on the circulating system by which the bleaching liquor is forced through the material by means of a pump. The fumes arising from the liquor are removed by a fan so as to cause no inconvenience in the workroom.

Waste Cleaning Machine. Johannes Weiss, Leipzig, Germany. A machine for cleaning oily waste by means of steam.

Pneumatic Cloth Guide and Feeder. Daniel Foxwell & Son, Manchester, England. An automatic machine for guiding cloth to finishing and similar machines. It is operated by air pressure which is applied and released as the selvage moves in or out.

Hydraulic Flat Press for Cloth. F. Hattersley Pickard & Co., Leeds, Eng., have recently placed on the market an improved continuous flat plate hydraulic pressing machine for woolen, worsted, mohair and cotton cloths. The cloth is fed continuously into the machine and is pressed between a fixed upper plate and a lower plate that is operated by hydraulic pressure. The advantages of the ordinary flat plate press and the rotary are thus obtained without the disadvantages of either. It is claimed that one man and an assistant can do as much work on the new press as seven men can do on ordinary presses. The machine is entirely automatic, the material being fed into it at one end, pressed and then delivered at the other end. Two pieces of cloth are put through at the same time, but each receives a separate pressing by means of an intermediate pressing plate. All three pressing plates are heated by steam.

Driving Beams on Slashers. W. Heap, Ashton-under-Lyne, Eng. An improved method of driving beams on slashers.

Stop Motion for Braiding Machines. Walter Kern, Barmen Ruttershausen, Germany. An improved braiding machine stop motion which operates when a thread breaks or a bobbin runs out.

Spinning Coarse Yarn. M. & C. Weise, Mittweida, Saxony. An improved method of spinning roving as it comes from the card in order to produce coarse filling yarn.

Weaving Printed Warps. Edwin Naef A.-G., Zurich, Switzerland. An improved method of warping, printing and weaving silk goods in which the warp is printed before weaving.

A PICKING, SHEARING AND BRUSHING MACHINE FOR BROAD SILKS

The illustration, Fig. 1, shows a machine which is being introduced in this country by A. W. Buhlmann, 200 Fifth Ave., New York. Its object is to remove the loose threads, slings, knots, etc., from the surface of silk fabrics, an operation that is usually done entirely by hand. The Buhlmann machine has been in use for a number of years in European mills where it has demonstrated its high efficiency and economy. It also removes the fuzziness from silk goods, an operation that ordinarily requires several passages over the singeing machine. The machine consists of an adjustable round brush to clean the face of the cloth and a flyer brush to clean the back. These brushes run in special bearings with ring oilers. There are two steel shearing cylinders provided with specially constructed spirals and a steel counter-blade. The shearing apparatus is combined with a patent air-suction and dust-collecting device, shown at Fig. 2. The cloth, W, passes over the hollow U-shaped table, T' and T^2. The shearing cylinder is enclosed in a tin casing and in front by the leather, L. The only opening is where the cloth enters between L and T'.

A vacuum is created in the casing by a powerful ventilator. The air cannot enter in the direction indicated by the arrow, A, as the spirals of the shearing cylinder work in the opposite direction, forcing it back. At the point, B, however, where the shearing cylinder touches the cloth, an air current is created and all loose parts on the surface of the fabric, such an threads, slings, knots and other protruding particles, are lifted up and guided to the shearing apparatus.

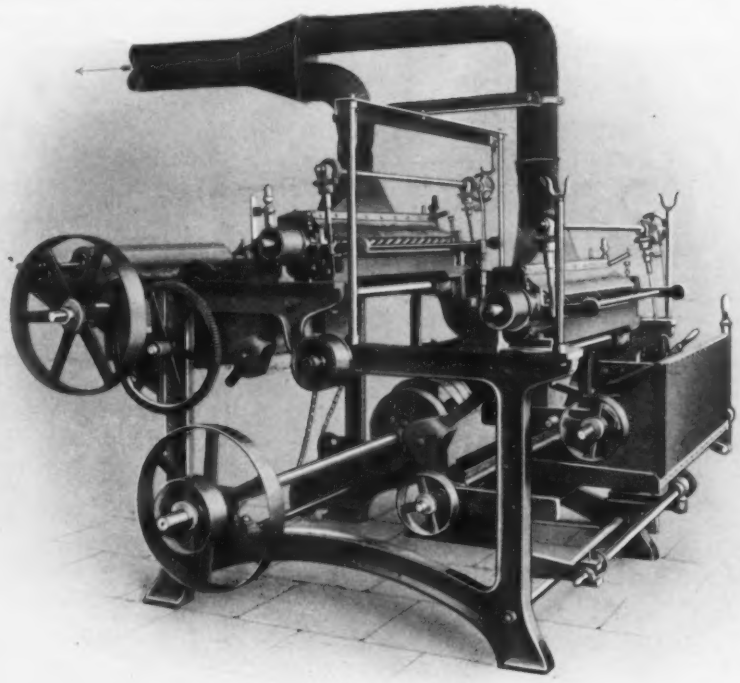


FIG. 1. A PICKING, SHEARING AND BRUSHING MACHINE FOR BROAD SILKS

The suction is an essential part of the process. Without it the shearing cylinder would create an air current against the cloth, blowing the loose particles away from the blades. It is for this reason that the ordinary shear is not suitable for silk goods.

The cleaning of the surface of the silk goods, the operation known as "picking," is still done by hand in this country. The Buhlmann machine does the work of from ten to

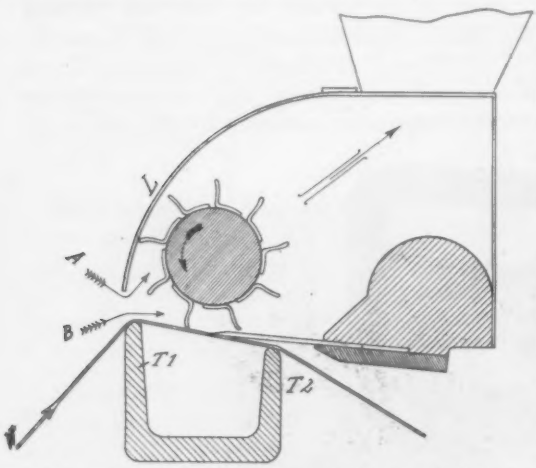


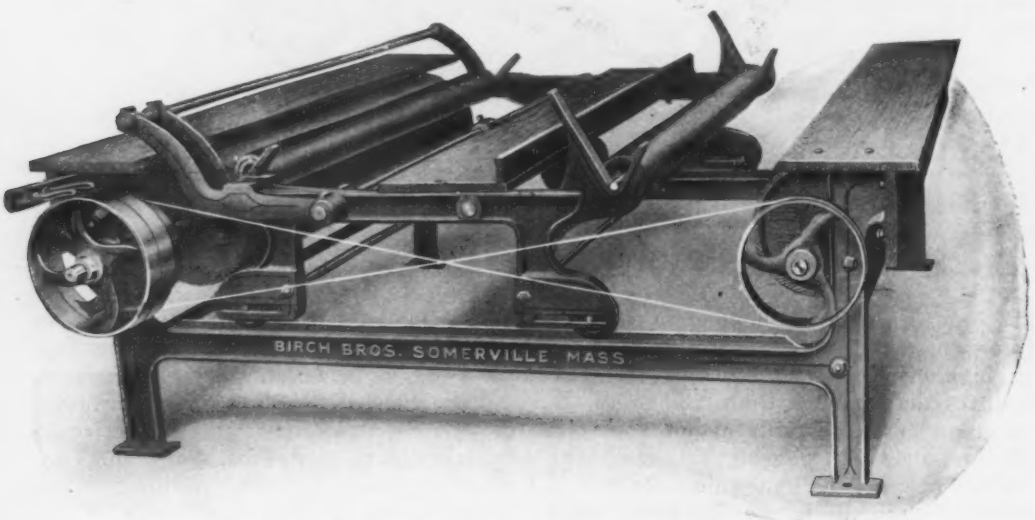
FIG. 2. THE BUHLMANN SHEARING APPARATUS COMBINED WITH A PATENT DUST-COLLECTING DEVICE

twenty pickers and does it better and more economically, also saving floor space. There are many mills in Europe that have as many as five machines in operation. It has displaced 75 per cent. of the pickers and in many cases paid for itself in less than six months.

A CLOTH PERCHING OR EXAMINING MACHINE

The machine shown in the accompanying illustration is built by Birch Bros., Somerville, Mass., and used for examining cloth for imperfections. It consists of a frame on which are mounted two large drums that revolve in opposite directions. On one end of the carriage a full roll of cloth is placed and on the other end a light weight wood roller on which the cloth is wound after it has been examined.

The machine, which is set under the ordinary perch rollers used at the present time, draws the cloth downward in front of the examiner so that there is no change in the method of examining the cloth. While perching the goods the examiner holds his hand lightly on the carriage rail so as to bring the empty wood roller in contact with the revolving drum. He can start or stop the movement of the cloth while standing in any position in front of the machine, and is able to do much more and better work with less labor, as he is no longer required to pull the cloth down by hand. Should it be necessary to reexamine any part of the cloth the attendant has only to push the carriage from him a few inches when the back roller carrying the cloth comes in contact



THE BIRCH PERCHING OR EXAMINING MACHINE

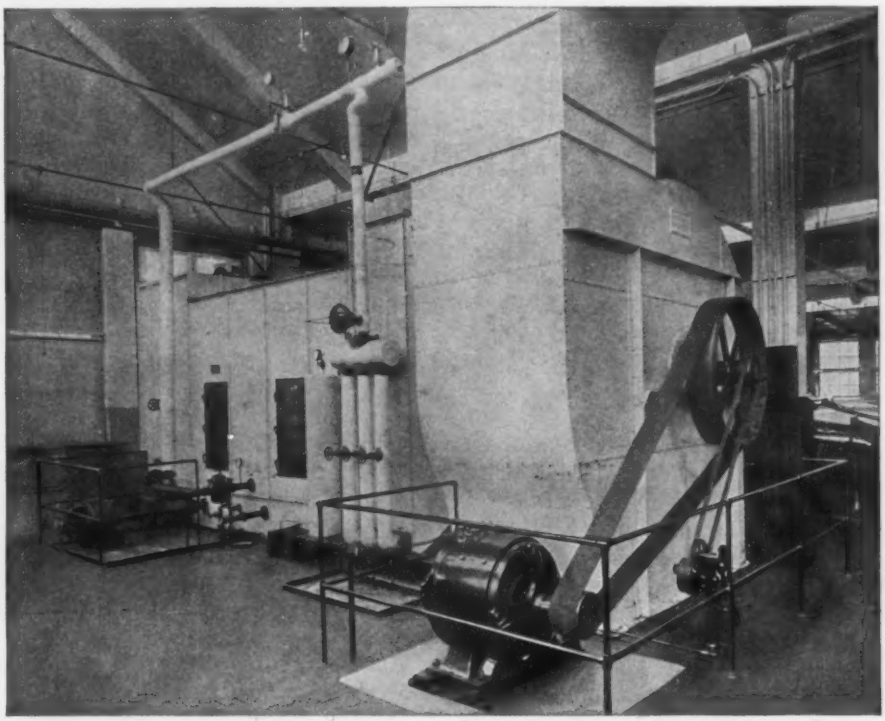
with the back drum which reverses the movement of the piece.

The machine is of attractive design and substantial construction and can be started, stopped or reversed instantly. A smooth, even surface is presented to the examiner for the whole width of the cloth at all times. The machine can be quickly adjusted for any width of cloth and has no complicated mechanical devices. The small quantity of power required can be applied by a belt running on a tight or loose pulley or by a motor connected with an ordinary electric light socket.

The rolls of cloth are easily slipped in and removed from the machine, which will be found very useful not only by cloth manufacturers, but also by cloth examiners, shrinkers and the cutting-up trade. The machine, which is patented, is sent on trial to approved parties.

REGULATING HUMIDITY AND TEMPERATURE IN TEXTILE MILLS

The necessity of humidifying of textile mills is now so well recognized that it is no longer a question of whether or not any artificial humidification should be adopted. The question now is what method should be employed, and whether it is advisable to maintain regular and uniform humidification at all seasons of the year.



THE CARRIER APPARATUS FOR REGULATING HUMIDITY AND TEMPERATURE IN TEXTILE MILLS

Formerly it was considered sufficient if humidifiers were installed to a sufficient extent to prevent the very dry conditions which occur during the colder months, when the most trouble was obtained from static electricity. Mill men who have made the closest study of the question are of the opinion that while a plant may be operated more successfully in summer than in winter without artificial humidification, still the production can be increased materially in sum-

mer by cooling the mill and maintaining the proper humidity.

In any mill where the conditions are allowed to vary from hour to hour, as is the case with every system which does not employ automatic humidity control, the production is not so great, due to the fact that it is very seldom in such mills that the humidity best suited for the work is maintained. It has only been in recent years that mill managers have come to realize that it was possible to cool textile mills during hot weather to temperatures very much below those of the outside with apparatus entailing a reasonable first cost and a reasonable cost of operation. Among the early plants for maintaining low temperatures in the mill in summer in this country were those installed by the Carrier Air Conditioning Co., 39 Cortlandt St., New York, their first installations in cotton mills having been made at the Peerless Mfg. Company, Lowell, N. C. and the American Thread Company, Kerr Mill No. 3, Fall River, Mass. These have been followed by many other installations in the cotton industry, among which may be mentioned the Farr Alpaca Company, Main Mill and Weave Sheds, Holyoke, Mass.; Ashland Cotton Company, Jewett City, Conn.; Sharp Mfg. Company, New Bedford, Mass.; Hamilton Mfg. Company, Lowell, Mass.; Ludlow Mfg. Associates, Ludlow, Mass.; Passaic Worsted Spinning Company, Passaic, N. J.; Indiana Cotton Mills, Cannelton, Ind.; St. Maurice Valley Cotton Mills, Three Rivers, Que., and Riverside & Dan River Cotton Mills, Danville, Va.

The apparatus employed in these mills is comparatively simple. The entire apparatus for heating, humidifying and cooling of the mill is placed at one point, so that it is readily accessible and the attendance required is small.

The apparatus as usually installed consists of a large steel plate fan with the humidifier through which the air is drawn, and where it is sprayed, washed, cooled and humidified to the amount required. In winter it is then passed through heating coils before entering the fan, so as to bring it to the required temperature. The air is blown from the fan usually through ducts or flues and distributed throughout the mill in the quantity required to maintain the proper air conditions. Where the mill has more than one floor, the heating coils, instead of being placed between the fan and humidifier, are usually located at the flue outlets on the different floors, thus enabling each floor to be heated and humidified independent of the others.

The cooling of the mill by this apparatus in summer is effected by the evaporation of the water in contact with the air as it passes through the humidifier. This cooling effect on warm days runs anywhere from 12° to 20° below the outside temperature. The air leaves the humidifier at 100 per cent. humidity, and the temperature is allowed to rise in the mill so that the humidity is reduced to that required. By this arrangement, mills on hot days carrying a reasonable humidity, are cooled from 8° to 15° below that of the outside temperature, making it much more comfortable for the operatives and making conditions very much better for the manipulation of the fibers.

The fan which is used for supplying the air to the building, and the centrifugal pump which is used for circulating the water, can be either steam, belt or electric driven. The cost of the power consumed is small as compared to the increased revenue due to increased production. The entire apparatus is automatically controlled, so as to maintain a uniform temperature throughout the winter and a uniform humidity throughout the year.

Among the advantages of such a system are the following:

(1) The cooling of mills in summer, holding the temperature down, enabling humidity to be maintained and giving an increased production in summer as well as winter.

(2) The maintaining of a constant temperature and humidity, thus enabling the work to be done with fewer adjustments, and fewer broken ends.

(3) The procuring of humidity and cooling by means of a very small amount of water which is evaporated.

(4) A humidifying system without any water being conveyed into the mill, which could in any way rust or affect the machinery.

AN INTERNAL MOTOR TRUCK FOR MILLS

In recent years the electric motor has revolutionized the methods of public transportation and has also been applied to industrial uses with equally marked results. The industrial trucks built by the General Vehicle Co., Long Island City, N. Y., represents the latest improvements in this method of transporting freight by industrial establishments.

FIG. 1. HAULING TUBS BACK TO THE DYE HOUSE

The freight truck is of special interest to textile manufacturers and has already been introduced in some of the leading textile mills of the country, dispensing as it does with the expensive and unsatisfactory teaming with horses.

The simple industrial or freight truck is built in sizes and capacities suitable for moving loads on piers, in freight sheds, warehouses and industrial establishments generally. Its clearance and radius of action permit it to pass through congested places, going forward or backward with ease and facility, and it is capable of ascending gradients of 10 to 25 per cent. On piers and railway terminals it can deliver its load on the deck of a vessel or within a freight car. In a warehouse or store it can carry its load from floor to floor wherever wanted with a degree of celerity otherwise impossible. In the factory it carries materials direct to the place where needed and at the precise time when needed, something impossible with moving apparatus working on a fixed track; and at the same time does it more quickly and more economically than can be done with the use of hand trucks.

The capacity of such trucks is usually 2,000 pounds, that having been found the practical limit for trucks capable of the widest range of action. The larger sizes must of necessity take up more room, and as the size increases greater clearances are required. The size and style suitable for a particular business always depends on the working conditions. For the great majority of cases, however, the truck of 2,000 pounds' capacity is ample. Few hand trucks are required to carry this much, and when they are they require several men to pull or push them. The loading space of the 2,000-pound

type is roughly 28 square feet, while the total area required for movement is but 34 square feet, in other words, they have an extreme width of 4 feet and an extreme length of 8 feet. Special sizes for handling baggage, mail, etc., are usually longer. Hence it is that where a hand truck can go, the industrial truck can go, while the latter can overcome grades that are impossible for hand-operated trucks.

when we have moved as much as 1,000 tons of material with the first truck purchased, resulting in a net saving to us, in labor, of 16 men". This result was obtained by operating practically 24 hours with two interchangeable batteries.

Twelve of these machines are used by one textile plant in New England chiefly for carrying rolls of print cloth from the storehouse to the printing machines, and for

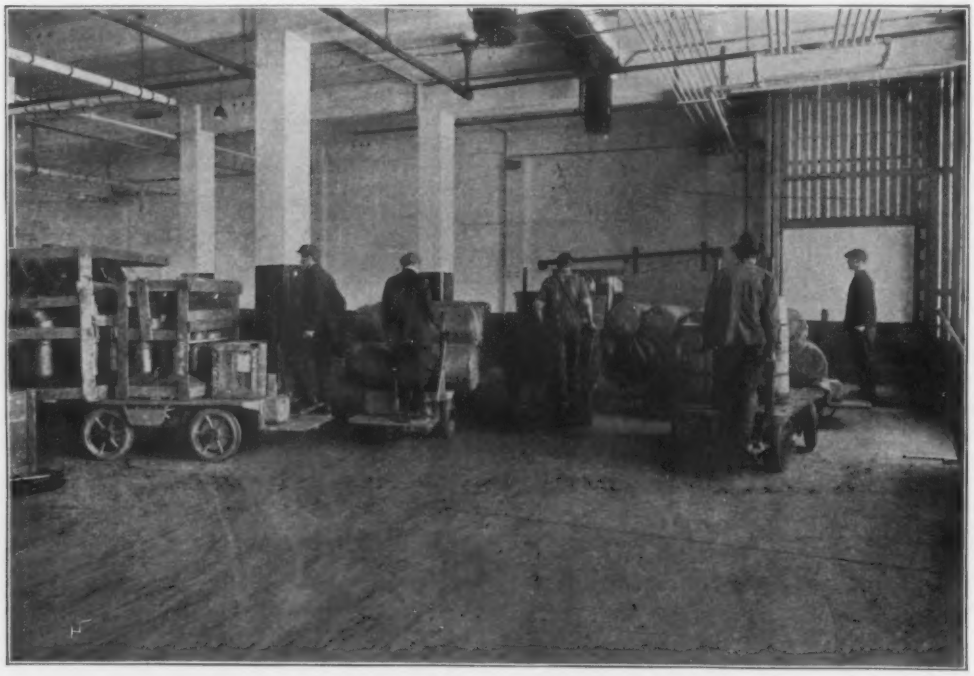


FIG. 2. PART OF A FLEET OF TWELVE 2000-LB. G. V. ELECTRICS IN THE SERVICE OF A PROMINENT NEW ENGLAND TEXTILE MILL

Experience with the smaller motor truck shows that it will do the work of five or six hand trucks in moving heavy units, such as drums, casts of oil, heavy bales and cases. Even when it has to wind about teams and standing freight it has delivered its load in about one-third the time consumed by hand trucks, which frequently block themselves in narrow aisles.

In Ambler, Pa., the general superintendent of an asbestos, slate and sheathing company states that "there have been days

carrying dye tubs from the color room to the machines, empties forming the return load. One of these trucks is shown at Fig. 1.

Fig. 2 shows a number of the 2,000 General Vehicle electrics, in the service of a leading New England textile mill. Among the users of this truck are such firms as the Boston Belting Co., Brown & Sharpe Mfg. Co., Fisk Rubber Co., National Cash Register Co., Spencer Heater Co., the Pacific Mills.

EXTERMINATION OF MOTHS

Considerable damage and loss is caused by moths in woolen and worsted mills. Dry goods houses, manufacturing clothiers and stores handling fabrics of the above description have to suffer more or less on account of damage done to their goods by moths. A new moth destroyer has recently been placed upon the market under the name of "Antimot," by the Berlin Aniline Works, 213 Water St., New York, who claim it is the most effective moth exterminator in existence. "Antimot" should be given a trial by every manufacturer and dealer of woolen and worsted goods, as the protection of their stock, both in the raw state as well as in form of yarn or woven fabric is far too serious a problem to be trifled with. "Antimot" has met with success and the demand for it is growing daily. It is a colorless, crystalline substance, which evaporates very easily. It has a peculiar ether-like smell and is harmless to human beings and domestic animals, but a specific poison for all kinds of insects. Owing to the volatile nature of the substance, it penetrates into all crevices and inaccessible places and saturates clothes and textile fabrics, killing insects that may be lurking there and destroying their larvae and eggs.

Some specifics for the extermination of insects have certain disadvantages. They are supposed to drive away the obnoxious insects by their strong smell, but either do not kill them at all, or only do so very slowly. They are very unpleasant to use, owing to their penetrating smell; this odor clings to everything, and is very hard to get rid of; some are easily inflammable, such as camphor and carbon bisulphide. "Antimot" has the advantage of being a true insect poison, and possesses but a weak, ether-like smell, which, owing to the volatile nature of the substance, can be removed quickly by exposing the objects saturated with the vapor to the air. It has, furthermore, the advantage of being inflammable only at higher temperature. It is used in the same way as camphor and naphtalene, but has a much greater penetrating effect, as its vapor diffuses into the remotest corners. It suffices to place a sufficient quantity of the specific in one or two portions in the store rooms or cases where the goods are kept. "Antimot" does not injure either colored or white goods and can with safety be used to protect the goods without damaging them. Samples will be sent free of charge for trial on application to the manufacturers.

BUBBLING FOUNTAINS FOR MILLS

Led by Kansas in 1910 ten States have passed laws prohibiting the use of public drinking cups, because of the danger of

FIG. 1. A SANITARY BUBBLING FOUNTAIN

spreading diseases, such as typhoid fever, diphtheria and pneumonia. It is apparently only a question of a short time when similar laws will be in effect in all the States. Even if it were not for this fact, manufacturers would in all probability adopt some sanitary substitute for the common drinking cup. To supply this want the Rundle-Spence Mfg. Co., Milwaukee, Wis., are manufacturing the sanitary bubbling fountain shown at Fig. 1. The water is turned on these foun-

tains by pressing a lever as shown, and is shut off as soon as the lever is released. The fountains can be installed in any location desired and are free from all danger of spreading disease.

In addition to the fountain shown at Fig. 1 the Rundell-Spence Mfg. Co. have been

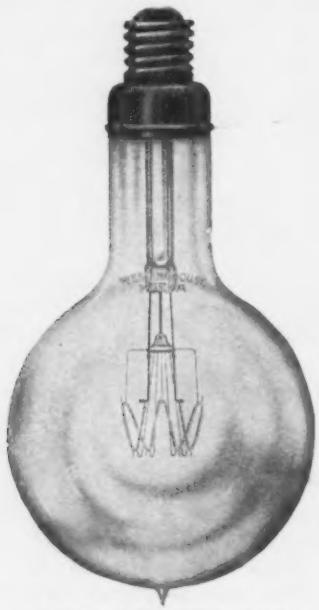
FIG. 2. AN ARRANGEMENT FOR COOLING WATER

called upon to supply special equipments arranged for cooling the water. One of these is shown at Fig. 2 in which the water first runs into a barrel or tank where it is cooled for use in warm weather. It is then carried from the tank to the fountain as shown.

NEW IMPROVED MAZDA INCANDESCENT LAMPS FOR LIGHTING LARGE AREAS

For a long time there has been a demand for an incandescent lamp of high candle power. Those who wanted the simplicity and reliability of the incandescent system have in many cases refrained from using it because of its relatively low efficiency. The Westinghouse Lamp Company has just put on the market an improved Mazda lamp to meet this demand and fulfill its requirements. This lamp operates at an efficiency of approximately 6 watts per candle power —which they claim is 33 per cent. higher than any efficiency ever before obtained in a commercial incandescent lamp for standard lighting circuits.

The filament in the lamp consists of a closely coiled tungsten wire supported by anchors as shown in the illustration. The lamps are made in 750 and 1,000 watt sizes for 100 to 130 volt circuits; the 750 watt giving approximately 1,100 candle power and the 1,000 watt approximately 1,650 candle power. The color of the light given by these new Westinghouse Mazdas approaches sunlight more closely than the regular Mazda lamp. The lamps can be operated on direct or alternating current circuits of any frequency in commercial use today. On account of the intense brilliancy of the filament, it is desirable that the lamps



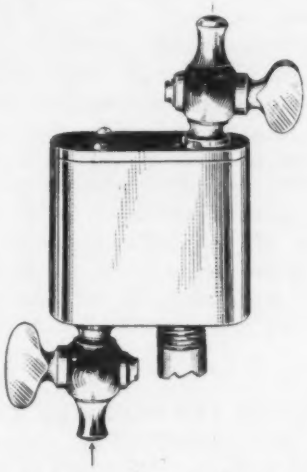
A MAZDA INCANDESCENT LAMP

be used with some kind of diffusing reflector and they are ideal lamps for indirect or semi-indirect lighting. Trial installations of the lamps have proved that they are reliable and that satisfactory life and service can be guaranteed. It is expected that these lamps will become popular for textile mills. The Westinghouse Lamp Company has issued a bulletin giving full information in regard to the new units.

Embroidery was introduced into St. Gallen, Switzerland, in the middle of the 18th century as a hand industry.

THE TEES DASH POT GOVERNOR

The illustration shows the Tees dash pot governor manufactured by Marcellus & Tees, 527 Fairmount Ave., Philadelphia, Pa., which is in successful use on engines in a large number of leading establishments of the country. This governor breaks and creates the vacuum at every revolution. As the plunger rises and draws in the air



THE TEES DASH POT GOVERNOR

through the lower cock, the ball valve rises with it, causing the plunger to lift much easier. When the plunger rod has reached its height, the ball vale drops, closing it against any further entrance of air. The air then passes down the 1/4-inch pipe into the pot, on the descending stroke; the air rushing up lifts ball No. 2 and discharges at the top cock, this relieving much friction on the blocks.

It is claimed that the Tees dash pot governor gives a perfect control of the air and is suited for nearly every style of vacuum or air governed dash pot. The Tees governor reduces the strain and friction of the lift. This is an important point as is conclusively shown by the fact that it requires the strength of two men to remove the plunger from the pot when making repairs. This shows the great strain on the fingers or crab-claws of the gear when lifting the plunger at each revolution of the engine.

The Tees governor saves wear on the blocks, steadies the engine governor and lubricates the pots, keeping them clean by blowing out the dirty oil and grit. If the plunger does not drop with precision at every stroke, there is a loss of steam; it may be little or it may be much, nevertheless in a day's running it counts largely. The Tees governor regulates and breaks the vacuum at the proper moment to reduce the strain, and, by the inflowing of air, helps raise the piston. If the plunger drops sluggishly or dances, there is a waste of steam, besides an uneven rattle and racking of the gear. These difficulties are prevented by the Tees regulator, which, varying with the size of the engine, removes from 25 to 50 pounds of the lift, causing the plunger to drop quickly and with less noise. The governor will last for years and saves much expense in the repairing of the dash pots. In a number of cases dash pots, which were supposed to be worn out, have continued in use for years after the regulator was applied. Further information can be obtained from Marcellus & Tees, who are ready to send the regulator to responsible parties on 30 days' trial.

DANYSZ-VIRUS

Philadelphia, Feb. 28, 1914.

Editor Textile World Record:

I desire to submit a few questions to you through the columns of your publication about Danysz-Virus which is now being advertised in the Textile World Record.

Like all other textile mill men, I am very much interested in the destruction of rats and mice as they do so much damage to mill property and are often the cause of fires. I am opposed to the use of poisons, but I cannot understand how this Danysz-Virus which is advertised can kill rats if it is not a poison. Another thing, if it will kill rats why won't it kill other animals or even people? They say that it causes rats to die in the open. I do not see why a rat that is going to die should take the trouble to get out of a building before dying.

I would be glad if you would print this

letter in the query department of the Textile World Record so that the Danysz-Virus people can answer it there as I know of a number of other people who would be interested in hearing their explanation in answer to my questions.

Yours very truly,

Otto Martin, Supt.

New York, Apr. 1, 1914.

Editor Textile World Record:

Replying to the question of Otto Martin, superintendent of the Superior Textile Mill, Philadelphia, relative to Danysz Virus would say: that the very name, Danysz Virus, means germs. Danysz Virus is the name of a disease germ that was discovered by Dr. Jean Danysz of the Pasteur Institute of Paris after the outbreak of an epidemic among field mice in France. Dr. Danysz succeeded in isolating this germ which is fatal to rats and mice, but which is harmless to other animals or to human beings. It is well known that human diseases such as smallpox and scarlet fever cannot be transmitted to animals and it is also true that most diseases peculiar to animals cannot be transmitted to human beings. This explains why Danysz Virus will kill rats and mice and not harm domestic animals, birds, etc., or human beings.

The disease which Danysz Virus gives to rodents causes an intense fever after a period of about four days, which drives the pests from their haunts in search of air and water and at the expiration of from ten to fourteen days it causes their death. Thus it will be seen that, on account of the moderate action of the Virus, rodents do not die in the buildings which they might have been in the habit of infesting, but they leave it as soon as possible after the first severe effects of the fever has been felt by them.

We thank you for giving us this opportunity to answer the inquiries of one of the readers of the Textile World Record and we will be pleased at any time to furnish any other subscriber with whatever information he may desire relative to Danysz Virus.

Danysz Virus, Limited.

72 Front St., New York.

A BOBBIN WINDER FOR KNITTING YARN

An improved machine for winding knitting yarn on bobbins has recently been brought out by Jacob K. Altemus, 2824 N. Fourth St., Philadelphia, Pa., and is designed to overcome a number of difficulties which are encountered in winding yarn of this kind. Among these difficulties have been the variation in the diameter of the bobbin and the falling of the yarn under the base of the bobbin causing breakage from excessive strain. The yarn guide and builder of the machine are built on a new principle which has been protected by patents. It permits bobbins with different sized bases to be used, and guides the yarn so as to prevent it winding under the previous layer. The machine is adapted for winding knitting bobbins and also for large taper cones for silk as well as for small bobbins for filling and paper tubes. Only the best materials are used in the machine, which is built on the most improved principles.

SETTING AND REMOVING RING TRAVELERS

In the December issue of the Textile World Record we illustrated and described an apparatus for setting and removing ring travelers, manufactured by Gebruder Staeubli, Horgen, Germany. We are informed that Alfred Suter, 200 Fifth Ave., New York City, is now the American agent for this device. It is a simple apparatus by which the travelers can be quickly placed on the rings. The pressure of the hand on the handle of the apparatus sets the traveler in place. A slightly different device is employed for removing the old travelers from the rings; the pressure of the hand on the handle removes the traveler which slides on to a wire carrier. It is claimed that no injury to the ring results from the use of these tools. The statement is made that the travelers can be removed from 400 rings and new travelers set in their places by two girls in from six to seven minutes, an operation which by former methods requires twenty to thirty minutes.

Personals

W. W. Weeden has been appointed agent of the Strathmore Worsted Co., Concord Junction, Mass. He was formerly agent of the Manton Mill, American Woolen Co., Manton, R. I.

F. W. Birkenshaw, overseer of finishing at the James & E. H. Wilson Mill, Taconic Mills, Pittsfield, Mass., has resigned to accept a similar position with the Bay State Mill, American Woolen Co., Lowell, Mass.

John Leary, overseer of finishing at the Holden, Leonard & Company's Mill, Bennington, Vt., has resigned to accept a similar position with the Sawyer Mill, American Woolen Co., Dover, N. H.

Philip L. Jackson has accepted the position of overseer of finishing at the Patrick Duluth Woolen Mills, Duluth, Minn. He comes from Reedsburg, Wis., and succeeds Frank Ravenscroft.

Fred Norris, overseer of weaving at the Davol Mill, Fall River, Mass., has resigned to accept the position of superintendent at the Border City Manufacturing Co., Fall River, to succeed John J. Shea.

Bernard E. French has accepted the position of overseer of weaving at the Davol Mill, Fall River, Mass.

David Mathewson has been appointed overseer of finishing at the Waucantuck Mill, Uxbridge, Mass. He was formerly employed at the Stillwater Worsted Co., Harrisville, R. I.

Joseph D. Price, overseer of dyeing at the Squam Lake Woolen Co., Ashland, N. H., has severed his connection with that company. He is succeeded by James Horsfall from Lowell, Mass.

Frank Lynch, overseer of bleaching at the Standard Knitting Mills Co., Brooklyn, N. Y., has severed his connection with that company.

H. S. Hartley has accepted the position of overseer of carding at the Utica Knitting Co., Sherburne, N. Y. He was formerly employed at the Newmarket Manufacturing Co., Newmarket, N. H.

James H. Hillens, overseer of finishing at the Bay State Mill, American Woolen Co., Lowell, Mass., has resigned.

Timothy A. Regan, overseer of finishing at the Puritan Mill, American Woolen Co., Plymouth, Mass., has severed his connection with that company.

John Stack has accepted the position of overseer of finishing at the Troy Knitting Co., Troy, N. Y.

John Hayes has accepted the position of overseer of knitting at the Troy Knitting Co., Troy, N. Y.

Thomas F. Kelly has accepted the position of overseer of dyeing and finishing at the Corinna Manufacturing Co., Corinna, Me.

T. A. Adams has been appointed general manager of the South Texas Cotton Mill, Brenham, Texas.

W. H. McDonald, superintendent of the Alabama Cotton Mills, Speigner, Ala., has resigned to accept a similar position at the Albany Cotton Mills, Albany, Ga.

W. W. Kidd has been appointed superintendent of the Vass Cotton Mill, Vass, N. C. He was formerly employed at the High Falls Manufacturing Co., of High Falls, N. C.

W. A. Stone has succeeded Fred Turner as overseer of spinning at the Riverside Mills, Anderson, S. C.

J. B. Cleary has accepted the position of overseer of spinning at the Waxahachie Cotton Mills, Waxahachie, Texas.

W. H. Batton has accepted the position of overseer of spinning at the Maple Mills, Dillon, S. C. He was formerly employed at the Bellwill Mills, Wilmington, N. C.

P. P. Jones has accepted the position of overseer of carding and spinning at the Corriher Mills, Landis, N. C. He comes from Rosemary, N. C.

Robert R. Alexander has been appointed superintendent of the Thomas Kitson & Sons' Mill at Stroudsburg, Pa. He was formerly employed at the Assabet Mill, Maynard, Mass.

John Morrison of the Morrison Woolen Co., Dexter, Me., has been compelled to take a greatly needed vacation. The mill will be under the management of William Morrison. John Basket will act as superintendent.

F. Booth Armistead has accepted the position of designer and assistant superintendent at the Hanover Woolen Manufacturing Co., Hanover, Ill. He comes from Philadelphia, Pa.

O. F. Ireland has accepted the position of overseer of finishing at the Oakland Manufacturing Co., Reisterstown, Md. He comes from West Somerville, Mass.

John Heaton, overseer of finishing at the Somerset Woolen Co., Monson, Mass., has resigned to accept a similar position at the Germania Mill, Holyoke, Mass.

Frank Ravenscroft has accepted the position of overseer of finishing at the Hanover Woolen Manufacturing Co., Hanover, Ill. He was formerly employed at the Patrick-Duluth Woolen Mills, Duluth, Minn.

Emerson Miller, overseer of spinning at the Valley Queen Mill, River Point, R. I., has ac-

cepted a similar position with the Royal Mill at the same place.

James Nelson, formerly of the Boott Mill, Lowell, Mass., has succeeded Emerson Miller as overseer of spinning at the Valley Queen Mill, River Point, R. I.

W. F. Ambach, overseer of finishing at the Scotia Worsted Mill, Woonsocket, R. I., has resigned his position with that company.

John Mitchell has accepted the position of overseer of spinning at the Fitchburg Yarn Co., Fitchburg, Mass.

F. Ward, overseer of carding and spinning at the National Knitting Co., Milwaukee, Wis., has severed his connection with that company.

J. W. Ahmuty has been appointed superintendent of the Lockhart Mills, Lockhart, S. C. He was formerly employed at the Abingdon Mills, Huntsville, Ala.

J. F. Bell has accepted the position of overseer of spinning at the Fairfield Mills, Winnsboro, S. C. He was formerly employed at the Granby Mills, Columbia, S. C.

J. E. Pursley has been appointed superintendent of the White City Mill, Athens, Ga.

E. O. York has been appointed superintendent of the Central Falls Cotton Mill, Central Falls, N. C.

J. H. Yearty has accepted the position as overseer of spinning at the Walterboro Cotton Mill, Walterboro, S. C.

William Sisk has accepted the position as overseer of weaving at the Postex Cotton Mill, Post City, Texas.

W. O. Bushlow has accepted the position of overseer of spinning at the Conestee Mills, Reedy River, S. C.

Clifton Corley has been appointed superintendent of the Marlboro Mill No. 4, McColl, S. C.

C. C. Gossett has accepted the position of overseer of spinning at the Enoree Manufacturing Co., Enoree, S. C. He comes from Fountain Inn, S. C.

W. H. Smith has accepted the position of overseer of the cloth room at the Fountain Inn Manufacturing Co., Fountain Inn, S. C.

W. T. Garner has returned to the Beaumont Mill, Spartanburg, S. C., to take the position of overseer of weaving.

C. M. Bowden has accepted the position of overseer of carding and spinning at the Kershaw Cotton Mills, Kershaw, S. C.

E. T. Barnes has accepted the position of overseer of spinning at the Echota Mills, Calhoun, Ga. He was formerly employed at the Fairfield Mills, Winnsboro, S. C.

John Murphy has accepted the position of overseer of finishing at the Ardmore Mill, Yantic, Conn.

R. G. Henderson, superintendent of the Woodside Woolen Co., Northboro, Mass., has severed his connection with that company. He is succeeded by Henry Smith, one of the stockholders.

H. Stewart Redmond, superintendent of the Appleton Mill, Lowell, Mass., has resigned to accept a similar position with the Stark Mills, Manchester, N. H.

James Hardy, overseer of carding at the Weybosset Mills, American Woolen Co., Providence, R. I., has resigned his position with that company.

Thomas F. Carey, formerly overseer of the spinning department at the Pepperell Manufacturing Co., Biddeford, Me., has accepted a position with the York Manufacturing Co., Saco, Me., succeeding C. L. Tarbox.

Thomas Parkin has accepted the position of overseer of dressing at the Smithfield Worsted Mill, Greenville, R. I. He was formerly employed at the Continental Worsted Co., Providence, R. I.

Ernest Simpson has been appointed overseer of the bleaching department at the Amoskeag Manufacturing Corporation, Manchester, N. H.

J. P. Davison, overseer of finishing at the Franklin Mills, Franklin, N. H., has resigned his position with that company.

William Randall, overseer of the spinning department at the Millbury Spinning Co., Millbury, Mass., has resigned his position to accept a similar position with the Wood Worsted Mill, Lawrence, Mass. He is succeeded by Rubin Holdsworth of Limerick, Me.

S. A. Diehl, superintendent of the Derry Silk Mill, South Bethlehem, Pa., has resigned his position with that company. He has secured a similar position in New York City.

John Beavers has been appointed overseer of the yarn dyeing department and Albert Wood has been chosen as overseer of the piece dyeing department at the Richardson, Foster Co., Central Falls, R. I., to succeed Hugh Cameron, who had charge of both departments.

Alfred Arvisais, overseer of weaving at the Adams Woolen Co., Adams, Mass., has resigned his position with that company.

E. W. Billings has accepted the position of overseer of carding and spinning at the Pittsfield Mill, Exeter Manufacturing Co., Pittsfield, N. H.

J. T. Bord has accepted the position of overseer of beaming at the Alta Vista Mills, Alta Vista, Va.

S. A. Lovelace has accepted the position of overseer of weaving at the Brookford Mills, Brookford, N. C.

Thomas B. Beal has been appointed treasurer of the Bigelow Carpet Co., Clinton, Mass., to succeed the late Charles F. Fairbanks.

Carl Taubert, agent of the Manton Mill, American Woolen Co., Manton, R. I., has severed his connection with that company.

C. S. Garner has accepted the position of overseer of weaving at the Ardmore Mill, Yantic, Conn.

John Cobb, overseer of carding at the Garland Woolen Co., Staffordville, Conn., has resigned his position with that company. He is succeeded by Charles Smith of Staffordville, Conn.

William Murray has accepted the position of overseer of scouring, carding and combing with James Irving & Son, Ltd., Chester, Pa.

Watson T. Dunmore, Jr., overseer of carding at the Troy Knitting Co., Cohoes, N. Y., has resigned his position with that company.

John W. Scott has accepted the position as overseer of weaving at the Cowan Woolen Co., Lewiston, Me. He was formerly employed at the Linn Woolen Co., Hartland, Me.

Elwood Ward, overseer of weaving at the Locustville Woolen Co., Hope Valley, R. I., has severed his connection with that company.

John Boran has been appointed superintendent of the Trainer Spinning Co., Trainer, Pa., succeeding William Trainer, Jr.

William A. Brown has accepted the position of overseer of carding at the Waterbury Felt Co., Skaneateles Falls, N. Y.

B. E. Connell, overseer of weaving at the Ardmore Mill, Yantic, Conn., has resigned his position with that company.

Olin Brooks has accepted the position of paymaster at the Great Falls Woolen Company, Somersworth, N. H., succeeding J. William Fullerton. Mr. Brooks comes from Stafford Springs, Conn.

Frank DeChapin has accepted the position of overseer of finishing at the Darling Woolen Mill Co., Holden, Mass., succeeding John H. Arran.

James Roberts, who has been loom fixer at the Garland Woolen Co., Staffordville, Conn., has been appointed overseer of weaving to succeed Leo J. Shindler.

Leeming Rhodes, for the past twenty-eight years employed at the Perseverance Worsted Co., Woonsocket, R. I., first as overseer of weaving and then as overseer of weaving and assistant superintendent, has severed his connection with that company.

Clarence Prevost, superintendent of the Townsend Mill, Anderson, S. C., has been elected to the position of secretary and treasurer also.

E. M. Holliday has accepted the position of overseer of the cloth room and finishing department at the Merrimack Mills, Huntsville, Ala. He was formerly employed at the Dan River Mills, Schoolfield, Va.

F. E. Blair has accepted the position of overseer of carding at the Crystal Springs Mill, Chickamauga, Ga.

J. G. Greenlee has been appointed superintendent of the Cape Fear Cotton Mills, Fayetteville, N. C.

W. P. Holt has been appointed superintendent of the Brander Mills, Concord, N. C. He was formerly employed at the Locke Mills, of the same city.

J. C. Jolly has accepted the position of overseer of spinning at the Prendergast Cotton Mills, Prendergast, Tenn. He comes from Gastonia, N. C.

L. A. Stillman, who has been superintendent of the Riverside Mill, American Woolen Co., Providence, R. I., has been appointed agent of the Manton Mill, of the same company.

Hartley L. Lord, who has been for a number of years agent of the Bates Manufacturing Co., Lewiston, Me., has resigned that position to accept the treasurership of the Chicopee Manufacturing Co., Chicopee Falls, Mass., taking the place of Albert G. Duncan, who has recently resigned. A number of years ago Mr. Lord was superintendent and afterwards agent of the Chicopee Manufacturing Co., leaving that mill to accept the general managership of the Union Buffalo Mills, Union, S. C.

George Fish, formerly employed at the Boott Mill, Lowell, Mass., has accepted the position of general superintendent of the Jenckes Spinning Co., Pawtucket, R. I.

E. P. Case, who has been connected with the Three Rivers Knitting Co., Three Rivers, Mich., has resigned his position with that company to accept the position of general manager of the Lamb Knit Goods Co., Colon, Mich.

James Waterhouse, superintendent of the North Adams Manufacturing Co., North Adams, Mass., has resigned his position with that company. He is succeeded by Swift Laurie, who has been head designer for this company.

John J. Connell, agent of the Booth Manufacturing Co., New Bedford, Mass., has resigned his position with that company.

Worthington Locke, assistant treasurer and agent of the Great Falls Woolen Co., Somersworth, N. H., has severed his connection with that company.

H. L. Crocker, superintendent of the Esmond Mill, Esmond, R. I., has severed his connection with that company.

Arthur Dickinson, who has recently resigned the position as superintendent of the Burgess Mill, Pawtucket, R. I., has accepted a position with Lockwood, Greene & Co., architects and mill engineers and is now located at their plant at Atlanta, Ga.

M. D. Lathrop, secretary of the Carbondale Knitting Co., Carbondale, Pa., has severed his connection with that company.

J. J. McCrary has accepted the position of superintendent of the carding at the Brogon Mills, Anderson, S. C. He was formerly employed at the Otis Co., Ware, Mass.

A. G. Dockett, overseer of the spinning department at the Berkshire Manufacturing Co., Adams, Mass., has been appointed to a more responsible

position with this company. He is succeeded in the spinning department by Andrew Plue, who has been second hand in the spinning department of Mills No. 1 and 2.

Emil Krisro, overseer of finishing at the Waterloc Woolen Manufacturing Co., Waterloo, N. Y., has severed his connection with that company.

Michael McCurn has accepted the position as overseer of carding at the Locustville Woolen Co., Hope Valley, R. I. He formerly held this position.

P. W. McMahon has accepted the position as designer at the Huntington Manufacturing Co., Huntington, Mass. He was formerly employed at the Rhode Island Worsted Co., Stafford Springs, Conn.

Otto C. Meyer has accepted the position of overseer of spinning at the Patrick Duluth Woolen Mill, Duluth, Minn., succeeding Fred Langley.

Herman E. Schaefer, overseer of finishing at the Felters Co., Millbury, Mass., has resigned to accept a similar position with the Mianus Manufacturing Co., Coscob, Conn.

Leo J. Shindler, overseer of weaving at the Garland Woolen Co., Staffordville, Conn., has severed his connection with that company.

George Fraser, overseer of carding at the Perry Yarn Mill, Webster, Mass., has resigned. He is succeeded by Henry Rogers.

Thomas B. Neary, for the past eight years second hand in the carding department at the Fall River Irons Works No. 5 Mill, Fall River, Mass., has resigned his position with that company.

Luke Higgins, overseer of carding at the Pocasset Mills No. 1 and 2, Fall River, Mass., has severed his connection with that company.

George Dunn has been promoted to the position of overseer of carding at the Pocasset No. 1 Mill, Fall River, Mass.

Owen Gilleran has been appointed overseer of carding at the Pocasset Mill No. 2, Fall River, Mass.

John H. Arran has accepted the position of overseer of finishing at the Waterloo Woolen Manufacturing Co., Waterloo, N. Y.

J. H. Merritt, superintendent of the Riverside Manufacturing Co., Anderson, S. C., has resigned. He is succeeded by T. L. Barber, who has been superintendent of the Lockhart Mill, Lockhart, S. C.

J. H. Gossett has accepted the position of assistant superintendent at the Kincaid Mills No. 2, Griffin, Ga. He was formerly employed at the Pepperton Cotton Mill, Jackson, Ga.

W. L. Bruce has accepted the position of overseer of spooling, warping, slashing and the cloth room at the Monaghan Mills, Walhalla, S. C.

R. P. Scruggs, superintendent of the Rhodhiss Manufacturing Co., and the E. A. Smith Manufacturing Co., at Rhodhiss, N. C., has resigned as superintendent of the Rhodhiss Manufacturing Co. and will devote his time to the E. A. Smith Manufacturing Co.

L. W. Kirkman has been promoted from overseer of weaving to the position of superintendent of the Rhodhiss Manufacturing Co., Rhodhiss, N. C.

J. E. Pressley has been appointed superintendent of the White City Mills, Athens, Ga. He was formerly overseer of carding at this mill.

R. T. LeGrand has been appointed superintendent of the Shelby Cotton Mills, Shelby, N. C. He was formerly employed at the Brander Mills, Concord, N. C.

A. Culberson has been appointed superintendent of the Fulton Bag & Cotton Mills, Atlanta, Ga. He was formerly employed at the Ella Mills, Shelby, N. C.

J. E. Wicker has been appointed superintendent of the Holt-Morgan Mills, Fayetteville, N. C. He was formerly employed at the Roanoke Mills, Roanoke Rapids, N. C.

Douglas Anderson has accepted the position of overseer of dyeing at the Beoli Mills, American Woolen Co., Fitchburg, Mass. He was formerly employed at the Sawyer Mill, Dover, N. H.

John F. Cullen, superintendent of the finishing department at the Wood Worsted Mill, American Woolen Co., Lawrence, Mass., has severed his connection with that company.

Edward E. Magner has accepted the position of overseer of dyeing at the Cobourg Dyeing Co., Ltd., Cobourg, Ont., Canada.

W. H. Hearne has accepted the position of overseer of spinning at the Pomona Mills, Greensboro, N. C.

O. A. Reeves has accepted the position of overseer of carding at the Judson Mills, Greenville, S. C.

H. A. Taylor has accepted the position of overseer of carding at the Marlboro Cotton Mill No. 4, McColl, S. C.

C. Kizer has accepted the position of overseer of spinning at the Sevier Mills, Kings Mountain, N. C.

J. A. Shipes has accepted the position of overseer of spinning at the Cowpens Manufacturing Co., Cowpens, S. C.

J. T. Honeycutt has been promoted to the position of overseer of carding at the Sevier Mills, Kings Mountain, N. C.

W. I. Henson has accepted the position of overseer of carding at the Camperdown Mills, Greenville, S. C.

William Bamber has been appointed superintendent of the Marlboro Mills, No. 1 and 2, McColl, S. C. He comes from Putnam, Conn.

DEATHS.

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Alfred Hopkins, founder and treasurer of the Boston Gore & Web Manufacturing Co., at Chelsea, Mass., died at his home in Chelsea, after a short illness, at the age of 72 years. He is survived by his wife, one son and three daughters.

T. Quincy Brown, for over half a century a prominent business man of Boston, Mass., died at his home in that city at the age of 84 years. Mr. Brown was treasurer of the Assabet Woolen Mill at Maynard, Mass., for a number of years before it was taken over by the American Woolen Co. His wife and four sons survive him.

Robert Henry, Ex-Mayor of Fall River, Mass., died at his home in that city at the age of 80 years. He was unmarried and at the time of his death was president of the Fall River Saving's Bank, president of the Granite Mills and a director of the Stafford Mill. Mr. Henry was five years in the State Legislature.

Henry Thornton, 84 years of age, inventor of knitting machinery and designer of silk nets and other warp fabrics, died at his home in Brooklyn, N. Y.

Octave Lebrun, master mechanic at the Avon Manufacturing Co., Lewiston, Me., was instantly killed while operating an elevator carrying a heavy iron pump from the basement to the second floor. He was caught between the floor and the elevator. Mr. Lebrun was 35 years of age and is survived by his wife and five children.

General William Ames, vice-president of the International Braid Co., with mills at Attleboro and East Braintree, Mass., also Providence, R. I., died at his home in Providence at the age of 71 years. Mr. Ames became identified with the Fletcher Manufacturing Co. several years ago and was president and treasurer of this mill. He achieved a brilliant record during the Civil War and after returning to his home in Providence, became identified with manufacturing and banking interests. His wife, one son and a daughter survive him.

James McLaughlin, Jr., a well known resident of Skaneateles, N. Y., and one of the most enterprising citizens of that city, died at his home in Skaneateles Falls, N. Y., on February 26, after several years of illness, in his sixty-fifth year. Mr. McLaughlin was at one time connected with the Glenside Woolen Co., of Skaneateles Falls, but severed his connection with that company about ten years ago. He was one of the largest manufacturers of theasels in this country and at one time a partner in the theasel business which was conducted under the name of James McLaughlin & Son. This company employed a large number of hands. In 1880 their plant was destroyed by fire. His wife and two sons survive him.

Henry D. Klots, president of the Klots Silk Throwing Co., with mills in several large cities, died as the result of an operation for appendicitis at the Post Graduate Hospital in New York City at the age of 51 years. Mr. Klots founded the business of the Klots Silk Throwing Co. after graduating from Princeton University in 1888. His widow and one child survive him.

Charles F. Fairbanks, treasurer of the Bigelow Carpet Co. of Lowell and Clinton, Mass., died at his home in Boston, Mass., at the age of 72 years. He is survived by his widow, three sons and a daughter.

George E. Freeman died at his home in Northampton, Mass. Mr. Freeman formerly operated a mill at Providence, R. I., in the manufacture of braids and afterwards went to Canada where he established a braid factory known as the Nonotuck Silk Co.

J. B. Martin, founder and principal owner of the Martin Hosiery Mills, Raleigh, N. C., died at his home March 20 at the age of 70 years.

Robert Carr, employed at the Standard Knitting Mills, Knoxville, Tenn., was almost instantly killed, being drawn over the shafting while making some repairs in the mill. He was 23 years of age.

John Eccles, president of the Baltic Mills, Baltic, Conn., and widely known among cotton manufacturers, died at his home at the age of 72 years from a paralytic shock. Mr. Eccles was born in Preston, Eng., and was also a director in other business enterprises.

James A. Proctor, proprietor of the Genesee Woolen Mill, Genesee Depot, Wis., died at his home at the age of 93 years. He had been in the manufacturing business since 1868. Mr. Proctor was born in Yorkshire, Eng., and is survived by seven children.

Frank Bowen, overseer of the belt and roller covering department at the Atlantic Mill, Providence, R. I., died at his home in that city. He was a native of Boston, Mass., but moved to Rhode Island when a young man. He had been in the employ of the Atlantic Mill for the past fourteen years. His wife, two daughters and one son survive him.

Charles Porter, Jr., of Charles Porter & Sons, textile manufacturers of Philadelphia, Pa., died at the age of 45 years. The death of Mr. Porter, so soon after the death of his father, was a shock to the woolen goods trade in which both men had been long and favorably known. He came into prominence shortly after the formation of the American Association of Woolen and Worsted Manufacturers, of which he was the first secretary and subsequently president.

James M. Denegre, son of William P. Denegre, of the firm of A. J. Cameron Co., spinners of worsted yarns, Glenwood Ave. and Pacific St., Philadelphia, Pa., and for five years a salesman for that company, died recently at his late residence, 5217 Wissahickon Ave., Germantown, Pa. He has been ill with pneumonia five days and is survived by his widow and one child.

Ernest E. Clark died at the home of his brother at Ambler, Pa., after an illness of six months. Mr. Clark was at one time superintendent of the New York Mills, New York Mills, N. Y., the Dominion Textile Co. of Valleyfield, P. Q., Canada and the Saratoga Victory Manufacturing Co. of Victory Mills, N. Y. He was born at Great Falls, N. H., forty-eight years ago, and is survived by his wife, one daughter and a son.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.

The Official American Textile Directory; 1914 edition; compiled by the Textile World Record; 700 pages; 23 textile maps; Lord & Nagle Company, Boston, New York, and Philadelphia, publishers; Office Edition $3.00; Standard Edition $2.00; Vest Pocket Edition, divided into three sections, viz., New England States and Canada, Middle Atlantic States, Southern and Western States, $1.00 for each section.

Since last year's textile directories were compiled there have been thousands of important changes in the textile industry in the United States and Canada. The number of new mills started and the number of old mills passing out of existence exceeds slightly the number indicated a year ago. Changes in management, in products, and in equipment are more numerous, making the appearance of the new Directory, with all lists completely revised and brought up-to-date, a matter of great importance to the trade.

This is the 20th year of publication of the Official American Textile Directory, and each year the standard set by previous editions has been maintained and some advance made in arrangement or in completeness. This year's directory is in many ways an improvement over any directory of the textile trade previously compiled.

Some of the special features are as follows: A complete directory of textile mills of all classes, with full information, such as name of company or firm, names of officers, character of goods made and machinery equipment.

Copyrighted maps, by which any town referred to in the text can be quickly located on the map. There are twenty-three of these textile maps, which show only the cities and towns where there are textile establishments and junction points. Railroad facilities, distance from other towns, etc., are shown.

A yarn trade index, which gives a classified list of manufacturers of different kinds of yarn, who spin for the market; size of yarns spun and the way it is put up are given.

A classified list of cloth manufacturers, giving the classes of goods manufactured in every mill.

A commission and order section, giving classified lists of establishments doing all sorts of dyeing, bleaching, finishing, mercerizing, etc., on order for manufacturers and converters.

A list of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

Indexes are printed on different colored paper from the mill reports, enabling quicker reference to the section desired. The running headings at the top of pages are made to show at a glance the contents of each page.

Other features are an alphabetical index, dealers in raw materials, lists of manufacturers of and dealers in cotton and woolen waste, shoddy and flocks, selling agents and dry goods commission houses, machinery and supply section, and a list of the textile associations in the United States and Canada, with officers, addresses, etc.

The special attention of salesmen is called to the Vest Pocket Edition, divided into three sections; one of the New England States and Canada; one of the Middle Atlantic States; and one of the Southern and Western States. Each of these little directories contains the textile maps for the larger states in that book just as they appear in the large editions of the directory. These little books are six by three inches in size, similar in appearance to a vest pocket memorandum book, and no thicker. The mill reports are in the same complete form as they appear in the large editions and are arranged in the same ready-for-reference way.

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Productive Costs in Cotton Spinning Mills; by Arthur H. Hardman; 115 pages, 5 by 7 1/4; Emmott & Co., 65 King St., Manchester, Eng.

The greater portion of this volume is a reprint of articles from the "Textile Manufacturer," Manchester, Eng. The question of cost is considered under the following heads: Estimating Costs—Cotton, Production, Wages, General Expenses, Twist and Weft Yarn Costs, Discount and Profit, Combing, Export Trade Costs, Diagrams, Specimen Costing System.

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The Efficient Man; by Thomas D. West; 330 pages, 5 by 7 1/2; The Gardner Printing Co., Cleveland, O. Price $1.50.

This book deals with the question of efficiency in a popular style, the author giving the results of his extensive experience as workman, overseer and mill manager. The book is freely illustrated, the subject being considered under the following heads: Intellect, Education, Training and Managerial Conditions; The Demerits and Developable Efficiency of Supervisors; Establishing Business, Labor-Saving Management, Disciplining Men; Title of Special Subjects Treated in the Chapters.

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The Waterproofing of Fabrics; by Dr. S. Mierzinski; translated from the German; second English edition; 132 pages, 4 1/2 by 7; D. Van Nostrand Co., 25 Park Pl., New York. Price $2.50.

The English translation of this work appeared in 1903, and the second edition has been made necessary by the advance made since that time in the art of waterproofing textile materials. Much new material has been added and the abstracts of English waterproofing patents have been brought up to date.

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Le Monde Textile—1914; 1,244 pages, 5 1/4 by 9; A. Rey & Cie, 4 Rue Gentil, Lyon, France. Price $4.00.

We have received a copy of the 1914 edition of

this well known directory of the world's textile trade. It contains the usual features and classifications which have been carefully revised to bring them up to date. There are lists of textile manufacturers and merchants arranged according to country and location.

BUSINESS LITERATURE

Bubbling Fountains; The Rundle-Spence Mfg. Co., Milwaukee, Wis.

A 52-page booklet describing and illustrating the sanitary drinking fountains manufactured by the Rundle-Spence Mfg. Co. The fountains can be installed in any location desired and are free from all danger of spreading disease. This company also supply equipments for cooling the water in warm weather. These fountains have proved very popular in mills and factories, supplanting as they do the unsanitary drinking cup.

The Powell Patent "Model Star" Valve; The Wm. Powell Co., Cincinnati, O.

A circular describing and illustrating the "Model Star" valve with regrindable and renewable disc. These valves are cast of steam bronze composition which conforms to the requirements of the Bureau of Steam Engineering, U. S. Navy Department. They are made in medium and extra heavy patterns with screw and flanged ends.

The Diesel Engine; Busch-Sulzer Bros.—Diesel Engine Co., St. Louis, Mo.

An 111-page catalogue of a very attractive design which describes and illustrates the Diesel engine. The efficiency and economy of these engines is well illustrated by the small amount of space, fuel and attendance necessary. The Diesel engines eliminate coal bunkers, stacks, boiler room and boiler room auxiliaries. Every engine, before shipment, is carefully and thoroughly tested at quarter, half, three-quarters, full and overload, and a certified copy of the results is furnished with each engine.

The catalogue also contains a very interesting historical sketch of the Diesel engine which was brought to the attention of the engineering world in 1897, when Dr. Rudolf Diesel completed his first successful engine at Augsburg, Germany.

The Cassella Color Company are issuing a new supplement to the volume on cotton dyeing and descriptive of Diamine Aldehyde Scarlet GG, a valuable addition to their well-known series of Diamine Aldehyde Colors. Owing to the level dyeing properties of this dyestuff it possesses distinct advantages when applied to the dyeing of cotton in mechanical appliances.

Diamine Aldehyde Scarlet GG appears to be particularly advantageous in the dyeing of union goods on account of the cotton taking up the color deeper than the wool and which enables the dyer to cross-dye with acid dyeing colors to give brilliancy to the wool.

The Worcester Warp Compressing Machine Co. has been incorporated. The business has previously been carried on under that name by the Estate of David D. McTaggart.

Industrial Notes

STONE ROOF FOR MODERN MACHINE WORKS

A feature of the plant of the new South Works of the J. I. Case Threshing Machine Works at Racine, Wis., is the roofing, which is made of asbestos and Trinidad Lake asphalt. Asbestos is an indestructible, fibrous rock, the same substance which is used in the manufacture of fireproof theatre curtains. For roofing purposes it is made into a felt, layers of which are cemented together with Trinidad Lake asphalt. The combination of these two materials produces a roofing that is a sheet of pliable stone.

Because of its all-mineral composition this roofing will not rot, rust nor deteriorate, hence it never requires painting or any other form of coating. It is also said that this roofing is proof against the action of chemical fumes, and that sparks and burning brands have no effect on it. Many cases are on record in which it has for years withstood a continuous shower of sparks from stacks and cupolas.

This roofing is not affected by changes of temperature. The hottest weather does not cause it to dry out, melt or run, and the coldest weather does not crack it. It is still in good condition on hundreds of buildings after 15 to 30 years of service—without costing a cent for repairs. J-M Asbestos roofing is furnished in rolls or sheets, ready to lay, or in built-up form.

An interesting booklet describing this roofing in detail will be sent by the H. W. Johns-Manville Co., New York.

SOUTHERN NEW ENGLAND TEXTILE CLUB

The regular March meeting of the Southern New England Textile Club was held at the Hotel Crown, Providence, R. I., Saturday afternoon, March 21st. Judging by the many expressions of pleasure and satisfaction from the members and guests, it can safely be voted as being one of the most pleasant social gatherings the Club has ever had. Mr. Mansfield, the proprietor of the hotel, is entitled to credit for serving a very delightful dinner for those fortunate enough to be present.

In the absence of the president, Henry C. Dexter, the association was presided over by Senator Ezra Dixon, of the Dixon Lubricating Saddle Co., who managed the affair in his usual happy and dignified manner. The only matter of business that was announced was the report of the executive committee that they had decided not to hold a meeting and dinner in Boston during the week of the Textile Show, and because of the many evidences of disapproval on the part of the members and friends, it was evident that this decision was a mistake.

After dinner the members were entertained by J. W. Dengough of Toronto, whose interesting talk was much enhanced by the accompaniment of very clever crayon work.

THE MANUFACTURERS CLUB

The new building shown in the accompanying illustration, which is to be occupied by the Manufacturers Club of Philadelphia, was dedicated on March 23. The exercise began with a reception from 6.30 to 7 by the president, Nathan T. Folwell, and the other officers of the club. The members and guests then met in the auditorium where the meeting was opened with prayer by the Rev. R. H. Conwell, of Philadelphia. President

THE NEW MANUFACTURERS CLUB, PHILADELPHIA

Folwell then received the keys of the building from John Fisler, chairman of the building committee. Addresses were delivered by President Folwell, Alfred E. Burk of the building committee, and the Rev. Dr. Conwell. The dedicatory address was then delivered by the Hon. John Wanamaker, who said in part:

"We are here together to assist in the ceremony of the dawning of a new morning to the Manufacturers Club. This is only an old corner of Philadelphia, the motherland of America, but from now on it may be, and should be, the most important corner in the city through the use of this spacious building and the organization of manufacturers who occupy it tonight for the first time and for their sons who shall follow them.

"There will probably be 100,000 men who will annually visit this building. Let its environment and its purposes ever be full of noble suggestion and high inspiration to all who enter its portals.

"At the lake of Killarney more than once have I counted six distinct echoes from the boatman's bugle blast. Tonight I hear a multitude of echoes of the hammers with which your president struck the cornerstone a year and sixty-four days ago. With those echoes there is added to this hour a vivid flash of realization of the vision many of us had then of this magnificent building in which we are assembled for the first time.

"Philadelphia will justly expect that the company of manufacturers who have placed here this splendid house, excelling all others of its kind, so far as known, in any city of this giant republic, will make this great property to be a potential influence and power in the life of our city and State; that it will stand out for something more than a selfish social or political club or the club of a class; that it will seek to unite the entire community in advocacy of the common good, and by its sagacity and foresight advance the good name of Philadelphia throughout the world as the best market to purchase its products at first hand."

ANNUAL OUTING OF YARN SALESMEN

The annual spring outing of the Cotton Yarn Salesmen's Association will be held Saturday afternoon, May 9th, at Morris Junction on the Delaware. Morris Junction is five miles north of Camden, N. J., and has excellent train and trolley service. The committee on arrangements have planned for a shad dinner such as only the Delaware River can produce. Field sports and the annual ball game will be the features of the day. The popularity of this outing is a sure guaranty for a large crowd. The committee in charge are making special efforts at this time and it will be no exception to their previous gatherings.

ACCEPTS A POSITION WITH A. W. BUHLMANN

We have received notice to the effect that George R. Thurber, formerly with the Textile Finishing Machinery Co., of Providence, R. I., has accepted a position with A. W. Buhlmann, 200 Fifth Ave., New York City, a well known importer of textile machinery, giving his time to the introduction of several new lines of machinery which they have recently added.

THE ANGLO-AMERICAN EXHIBITION

The Textile World Record will be found on file at the Anglo-American Exposition, to be held in London this year from May to October, at the Commercial Club Rooms on the Exposition Grounds. This exposition is to celebrate the centenary of peace and progress in the arts, sciences and industries in the United States of America and the British Empire. It would be unfortunate if an occasion of this importance should not receive adequate recognition from American manufacturers. Greater interest is being manifested as the scope of the exhibition becomes better known and the American executive offices, at the Woolworth Bldg., are very glad to answer any questions and give full information. Albert E. Kiralfy is Commissioner General.

GORDON & CO., INC.

Savannah, Ga., March 21, 1914.

The business of Gordon & Company has been merged into a Corporation, and the assets and good will of the firm of Gordon & Company have been taken over by Gordon & Company, Inc.

The corporation assumes the liabilities, and will collect the assets of the firm.

Estate of W. W. Gordon,
By Nelly K. Gordon, Executrix,
Wm. W. Gordon, Executor,
G. Arthur Gordon, Executor,
G. Arthur Gordon.

Gordon & Company, Inc., will continue the business of Gordon & Company at the same location and with the same conservative methods which have been characteristic through an unbroken period of fifty-eight years.

Gordon & Company, Inc., will collect all assets and discharge the liabilities of the firm of Gordon & Company.

The corporation respectfully solicits a continuance of your patronage.

Gordon & Co., Inc.,
Attest: By G. A. Gordon, Pres.
B. Hunter, Secretary.

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DEALER IN SILK

F. Roelker, who is well known in the raw silk trade, has opened a suite of offices at 23 E. 26th St., New York City, where he will deal in all kinds of silk in the skein or on the beam. His long experience in the trade will enable him to be of benefit to the manufacturers using raw silk.

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NEW PROCESS GEARS

The New Process Gear Corporation, Syracuse, N. Y., is now building a new three-story, 40 by 100-foot concrete and steel building to provide additional machinery facilities for spur and bevel gear work. The new building is to be fireproof, with brick curtain walls and concrete floors, and will contain new equipment. Among the machines already ordered are 17 Gleason bevel gear generators, 14 Potter & Johnson automatic turret lathes, 6 Gould & Eberhardt bevel gear blocking machines and 2 Fellows spiral gear shapers, all to serve as additions to the larger batteries of similar machines now in service in the main plant.

The necessity for this substantial increase within a year after the New Process Gear's Corporation's already large plant has been doubled, indicates the characteristic progressiveness of the management and the appreciation by customers of a well made product.

The New Process Gear Corporation was first incorporated as the New Process Raw Hide Co. in 1888, the earlier name coming from the extensive manufacture of New Process noiseless rawhide gears and pinions, a line which has in latter years been supplemented by metal gear work to an extent necessitating a change to the present name on Jan. 1, 1913.

THE TECKTONIUS RIVETLESS FASTENER FOR TANKS

The rivetless fastener, shown in the accompanying illustrations, is manufactured by the E. C. Techtonius Manufacturing Co., Racine, Wis. Since its introduction twenty-five years ago it has grown steadily in favor, filling as it does a need in tank construction. This fastener differs radically from the method of fastening bands together with rivets. It operates on the clamp and wedge

FIG. 1

principle; the greater the strain, the stronger the fastener grips. It is made of the best malleable iron, and each fastener, before leaving the factory, is subjected to the hammer test which insures its being free from flaw and defect.

The gripping power, strength and durability of this fastener makes the band connection really stronger than the band itself, giving great strength and durability to what is usually the weakest part of the band. Rivets are liable to rust, shear or

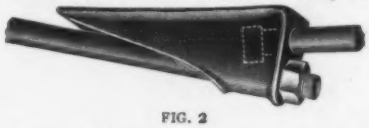

FIG. 2

pull off, jeopardizing the safety of the tank and its contents. Rivet holes, as well, are a source of weakness at all times. These defects are entirely eliminated by the rivetless fastener.

The new fastener can be easily applied, adjusted and removed without skilled labor. An ordinary workman can quickly apply these fasteners to any kiln, tank or other round wooden construction. This is an important advantage in making tank repairs. The illustrations show two of the many styles in which these fasteners are made. Fig. 1 shows a pair of single bolt flat band fasteners. Fig. 2 is a straight pull round iron fastener. The merits of the Tecktonius fastener are shown by their extensive use among manufacturers and users of kilns, silos, trunk sewers and irrigation flumes, as well as their being specified by the U. S. Government for wharf work. Users of tanks and other round wooden receptacles for any purpose should investigate this fastener.

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KISSELL KARS

"The sale of KisselKars at the Boston show, which by the way surpassed New York and Chicago in the number of exhibitors, was far and away beyond expectations," says Ralph Ketchum of the KisselKar. "Not only were many dealers added to the KisselKar New England representation, but a great number of retail sales were closed. This situation is fairly typical of the interest in this year's KisselKar models throughout the country. I think this is largely due to the fact that there is nothing experimental about the current KisselKars, no mechanical innovations not yet proved practicable. The KisselKar is, mechanically, as good as it can be built, and we have confined all our recent important changes to refinements and added equipment."

"KNIT GOODS"

The Haire Publishing Co., 200 Fifth Ave., New York City, has purchased "Knit Goods," which will be devoted exclusively to the interests of buyers, jobbers and manufacturers of hosiery, underwear, sweaters, fancy knit goods and allied lines. The new management is planning to meet the requirements of this trade and we wish them success.

THE LOWLAND WORSTED CO.

J. K. Johnson, 127 Federal St., Boston, Mass., has been appointed selling agent for the Lowland Worsted Company, Woonsocket, R. I., spinners of French and Bradford yarns for the weaving and knitting trade.

ALFRED SUTER

Those interested in the analysis of fabrics will have an opportunity of seeing at the Textile Exhibition in Boston the apparatus sold by Alfred Suter, 200 Fifth Ave., New York City, for this purpose. The set includes a round cutting die, universal yarn balance, twist tester and tables worked out showing the weight of the cloth in ounces per yard in any width or the yardage per pound is found at once. The yarn number is ascertained by the yarn balance and the number of twists per inch on the twist tester. This analyzing set will be demonstrated to interested parties at the coming exhibition and besides this Mr. Suter will have a complete line of yarn and cloth testing apparatus with some new types.

Another machine of interest to weaving mills which he will exhibit will be the reed brushing machine which automatically brushes and polishes the reeds after they have been used for some time on the loom. We believe catalogues and literature of other machinery for which he is agent will be on hand, including literature on mercerizing, cloth finishing and dyeing machines, etc.

GOULDS MFG. CO.

H. F. Miller, who for the past year has been associated with the advertising department of the Otis Elevator Company and for four years previous to that, with the Western Electric Company, has been appointed advertising manager of the Goulds Manufacturing Company of Seneca Falls, New York.

TRIANGLE CHART

The S. C. Carpenter Drafting & Engineering Co., 49 Oakland Terrace, Hartford, Conn., have designed and published a right triangle chart made of two thicknesses of cardboard. One piece in the form of a half circle swings on the center of the other, which is square bearing a circular chart. The two are graduated, so that by adjusting either scale to the given angle of a triangle the chart indicates not only the other angle, but also the sides and areas of the triangle. The Carpenter Drafting & Engineering Co. also publish charts for converting foreign money to United States currency.

SCOTT & WILLIAMS, INC.

Scott & Williams, Inc., of 88 Pearl St., Boston, Mass., announce the opening of New York offices at 366 Broadway, New York City, and an operative show-room with a full line of their knitting machines and a complete line of hosiery and underwear samples, the product of their machines. The officers and representatives of this company will be at this office frequently, and all of them are prepared to be met there by appointment at any time on previous notice. This move has been found necessary on account of their constantly growing business and will be a great convenience to manufacturers and one which they will greatly appreciate.

SOFTENER FOR SULPHUR BLACK

Every dyer of sulphur black knows that a good sulphur black cannot be obtained without proper softening after dyeing. No matter whether the best sulphur black dyestuff on the market and the highest concentration of the dye bath are employed, the result will be a dull and sometimes uneven black if poor softeners are applied. A softener should deepen the shade, level the color, take out bronze spots, develop bloom and soften the fiber. Jacques Wolf & Co., Passaic, N. J., state that their latest product known as "Levuline" possesses all of these properties. Messrs. Wolf & Co. are manufacturing chemists of textile specialties and they ask dyers having trouble with sulphur black to give "Levuline" a trial.

THE GOTHAM UNDERWEAR CO.

A banquet was given the 255 employes of the Gotham Underwear Co., Hamburg, Pa., by their employer, Solon D. Bauscher. J. Edward Miller, an attorney, was toastmaster; Walter W. Moyer, J. Frank Sweeney and John B. Lesher responded to toasts. Mr. Bauscher said that the 1,000 other employes would join next summer, to hold a joint picnic.

DODGE MFG. CO. BUYS GREENWALD BUSINESS

Announcement is made of the purchase by the Dodge Manufacturing Company of all the gear patterns, gear machinery and powder machinery patterns of the I. & E. Greenwald Company, Cincinnati, together with all records, drawings and good will of the business.

Most of the patterns and all the records are now in Mishawaka. The addition of the gear patterns to the already extensive list of Dodge gears gives the company the most complete line and widest list of gears in the United States.

A NEW LOCATION

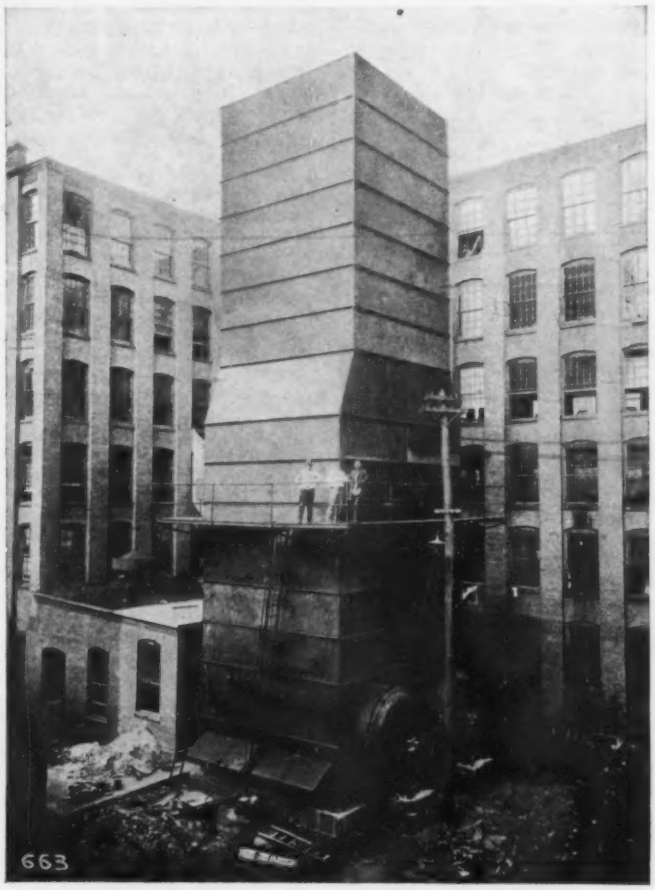
The Advance Folding Box & Container Co., of Reading, Pa., has sent out a notice to the trade that after April 1, 1914, they will be located in their new building at the corner of Pear and Washington Sts., Reading, Pa., where they will have increased facilities for manufacturing and shipping their line of folding boxes for the trade.

THE WHEELER-BARNARD COOLING TOWER

The accompanying photograph illustrates a large twin Wheeler-Barnard forced draft cooling tower recently built by the Wheeler Condenser & Engineering Co., Carteret, N. J., for the American Hardware Co. at their New Britain, Conn., plant. The capacity is 132,000 gallons per hour, cooled from 100° to 80°.

The tower proper terminates just above the platform on which the men are standing, the steel plate work above this being a stack to convey vapors above the roof of the building, and also to provide natural draft for operation in cold weather. The tower is designed with special air inlets which are opened when the fans are not in use and the stack supplies the draft. They consist of counterweighted doors, which when opened as shown in the picture, provide a large area for the inlet of air.

The unit consists of two towers arranged side by side, each 11 feet 5 inches wide and 18 feet 3 inches long erected over a reservoir which also serves as foundations. The chimney is 18 feet 3 inches square and the height from the base of the tower to the top of the stack is 70 feet. Forced draft is supplied by four 108-inch fans.



A LARGE TWIN WHEELER-BARNARD COOLING TOWER

WESTINGHOUSE EQUIPMENT IN THE BLACKSTONE VALLEY

A large amount of power used by the mills in the Blackstone Valley is furnished by central power stations, and many of these mills are now operated entirely by purchased power. The increasing loads on the central stations have recently necessitated large additions to their capacity. The Blackstone Valley Gas & Electric Company furnishing power in Pawtucket, Woonsocket and the lower valley have just started up a new 12,850 K. V. A. turbo-generator set in their Pawtucket power plant. This turbo set with condenser and transformers was purchased from the Westinghouse Electric & Mfg. Company.

The Worcester Suburban Electric Company, which together with the Worcester Electric Light Company furnish power in the northern end of the Blackstone valley are adding to their Uxbridge power house a 5,400 K. V. A. turbo-generator set, which was purchased from the same company. The Worcester Electric Light Company are adding to their Worcester plant a 7,800 K. V. A. turbo generator set. This is a total of 26,050 K. V. A. generating capacity being added at the present time by the central power stations in this valley. The addition of the Samoset Worsted Company in Woonsocket, R. I., is to be operated by power purchased from the Blackstone Valley Gas & Electric Company. Thirty Westinghouse motors are now being installed.

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GETTING AROUND THE CORNERS

By CHARLES R. TROWBRIDGE, of the Dodge Mfg. Co.

It is probable that the first attempts to transmit power to any distance was by means of a rope. First as an appliance for hoisting, later to transmit power from one revolving wheel to another, or from a treadle to a spindle, as in the early foot lathe, and thence to other mechanical appliances, the rope appears to have been the predecessor of the belt, and to have been replaced by the latter only when the amount of power seemed to be too great for a single rope to transmit under conditions of speed and location then existing.

Hampered by the speed limitations of the time, the millwrights of the early factory system, following the precedents set by Fairbairn and his followers, adopted heavy, slow running shafting and gearing to deliver power through a mill from the engine to the machinery, and it was not until higher speeds of shafting came into general practice that belting replaced gearing in general use. The same development caused a revival in the use of rope transmission, and especially since the commercial production of grooved pulleys became possible, the employment of rope driving, either with the English system of independent ropes or with the American system of re-duplication of an endless single rope, became general.

The early methods of transmitting power in this way, by the use of what Professor Reuleaux has called "wrapping" connections, were limited to the delivery of power from one shaft to another parallel shaft. If any other relation of the position of the driving or driven shafts became necessary, various clumsy expedients were devised to hold and guide the belt. When the power had to be delivered around a corner, or transmitted from one shaft above or below to another at right angles in another plane, there appeared the necessity for using what has been termed the quarter-turn belt, a device which every mechanic dislikes, but which he formerly felt compelled to use under such conditions.

With the modern American system of rope driving, however, the whole question of the delivery of power from one point to another is released from any strict limitations as to the relative position of the shafts, while to a large extent the question of distance is eliminated.

Rope-driving connections have been designed for the transmission of large powers with distances between centers as close as 9 feet and as wide as 700 feet, while the question of angular position of the shafts is always capable of effective solution. Experience has shown that by the use of rope transmission the highest degree of efficiency is attained, the friction losses being kept at a minimum, while the maintenance expense is lower than with other forms of power transmission.

These results are not obtained, as it may well be understood, by the mere substitution of rope for belt driving; it is essential that the installation be designed carefully for the situation in which it is to be used. Only in the light of the teaching of long experience has the modern system of rope driving been encountered and overcome during the past twenty-five years, yet even in this respect it is possible that special and novel conditions may yet arise.

In any case, it is advisable that a rope transmission should be designed and installed by specialists in this particular department of power transmission, both on account of the necessity for application of experience and because the engineer who has already become familiar in designing installation may better suggest methods and applications which would not occur to the mechanic, however able, who lacked familiarity with the unlimited variety of which the system is capable.

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TREASURY DECISIONS

T. D. 34085. Jan. 26, 1914. Drawback on dyed piece goods. T. D. 31020 of Nov. 1, 1910, extended to cover piece goods imported in the gray and dyed by the United Piece Dye Works, of Lodi, N. J., and the Merrill Silk Co., of Hornell, N. Y., for the account of C. Hoffbauer & Co., New York.

T. D. 34120. Jan. 31, 1914. Drawback on clothing. Drawback on women's and children's dresses manufactured by Borgenicht, Kornreich & Co., of New York, with the use of imported linens, serges, and similar fabrics and imported braids, buttons, embroideries and laces.

T. D. 34122. Jan. 31, 1914. Wearing apparel, appliqued. Appeal directed from decision of the Board of United States General Appraisers of Jan. 19, 1914, G. A. 7525 (T. D. 34087), involving the classification of articles of wearing apparel upon the fronts and other portions of which had been sewed strips of contrasting color fabrics, one pattern exhibiting figures of children at play. Duty was assessed upon the articles at the rate of 60 per cent. ad valorem under paragraph 349 of the tariff act of 1909, and the protest of the importers claiming the articles to be properly dutiable as wearing apparel at the rate of 50 per cent. ad valorem under paragraph 324 of the said act was sustained.

In view of the importance of the issue, you are hereby requested to file, in the name of the Secretary of the Treasury, an application with the United States Court of Customs Appeals for a review of the said decision, in accordance with the provisions of subsection 29 of section 28 of the act of Aug. 5, 1909.

T. D. 34139. Feb. 3, 1914. Silk plush. Hatters' plush. All silk plushes other than those 26 inches

in width, including the selvage, dutiable at the rate of 50 per cent. ad valorem under paragraph 314, tariff act of 1913.

T. D. 34142. Feb. 3, 1914. Drawback on yarn. Drawback on spooled yarn, twisted yarn, and twisted spooled yarn produced for the account of Paul Puttmann, of New York, by the Standard Silk Winding Co., New York, and the F. Eliot Low Co., Paterson, N. J., either from artificial silk yarn imported in the gray or such imported silk yarn after having been dyed for the account of Paul Puttmann under the provisions of T. D. 32391 of April 11, 1912, and T. D. 33135 of Feb. 1, 1913.

T. D. 34144. Feb. 4, 1914. Drawback on clothing. Drawback on men's clothing manufactured by Rosenberg Bros. & Co., of Rochester, N. Y., with the use of imported woolens, worsteds, linings, and buttons.

T. D. 34176. Feb. 11, 1914. Drawback on yarn. Drawback on mercerized, mercerized and bleached, and mercerized and dyed cotton yarn manufactured by Gerald Cooper, of Providence, R. I., and the Wm. Teschemacher Co., Brooklyn, N. Y., from cotton yarn imported in the gray.

T. D. 34183. Feb. 14, 1914. Waterproofing of wrapping papers, reinforced cloth-lined wrapping papers, etc. Oilcloth or reinforced wrapping papers, and oiled wrapping papers and imitation parchment wrapping papers are dutiable under paragraph 324, tariff act of 1913.

T. D. 34207. Feb. 26, 1914. Embroidered cotton hosiery, cotton gloves, towels, etc. Cotton hosiery, cotton gloves, towels, bath mats, and wool blankets not dutiable under paragraph 358 even though embroidered. Referring to the appraiser's suggestion that embroidered mufflers of cotton are dutiable under paragraph 255, your attention is invited to the fact that this paragraph provides only for mufflers not hemmed and for mufflers hemmed or hemstitched. It does not therefore cover mufflers embroidered but not hemmed or which are hemmed or hemstitched and in addition thereto are embroidered.

Towels, bath mats, quilts, blankets, sheets and pillow cases of cotton, if embroidered, are not dutiable under paragraph 264, as this paragraph expressly excludes such articles if embroidered, and they are accordingly dutiable under paragraph 358.

T. D. 34223. March 4, 1914. Jacquard woven cotton table damask. Jacquard woven cotton table damask dutiable at the rate of 30 per cent. ad valorem under paragraph 258, tariff act of 1913.

T. D. 34255. March 9, 1914. Number of yarn in cotton cloth. An addition of 8 1/2 per cent. to be made to bone-dry weight in ascertaining the number of the yarn in cotton cloth.

Sir: I have to invite your attention to T. D. 33823, prescribing an allowance for regain of 7 per cent. on cotton yarns and cloth after being dried to bone dryness. The department is in receipt of a letter from the Director of the Bureau of Standards, from which it appears that, after an extended investigation, he is of the opinion that a regain of 8 1/2 per cent. should be allowed.

In view of this information, the paragraph at the head of Table 1, in T. D. 33823 is amended to read as follows:

> Whenever the weight is found within 5 per cent. of its given equivalent weight in the table, it will be necessary to make further trials of at least four samples; and if the average weight is again found to be within 5 per cent., the sample must be conditioned, that is, dried to bone dryness and a regain of 8 1/2 per cent. added back.

T. D. 34268. March 13, 1914. Paper twine. Paper twine dutiable as a manufacture of paper under paragraph 332, tariff act of 1913, unless a declaration is attached to the invoice and an affidavit submitted by the importers that it is intended for use in the binding of wool of the sheep.

T. D. 34284. March 18, 1914. Narrow strips of cotton cloth. Narrow strips of cotton cloth, approximately 4 inches wide and from 5 to 6 1/2 yards in length, dutiable at the rate of 25 per cent. ad valorem under paragraph 262, tariff act of 1913.

T. D. 34285. March 18, 1914. Hair press cloth mats. Camel's hair press cloth mats dutiable at the rate of 35 per cent. ad valorem as manufactures of wool under paragraph 288, tariff act of 1913, and combination goat's hair and camel's hair mats dutiable at the rate of 15 per cent. ad valorem under paragraph 385 of the said act where goat hair is the element of chief value.

T. D. 34287. March 18, 1914. Terry cloth and turkish toweling. Terry cloth and similar fabrics to be classified as pile fabrics under paragraph 257, tariff act of 1913.

T. D. 34296. March 19, 1914. Drawback on veils. T. D. 33987 of Dec. 17, 1913, extended to cover ladies' veils manufactured by Martin Biavaschi, of New York, from imported veilings, mousseline de soie, nettings, and plain mailines, for the account of Weil Bros., New York.

T. D. 34292. March 19, 1914. Drawback on tarpaulines, boat covers, and sails. Drawback on tarpaulines, boat covers, and sails manufactured by Andrew Mills & Sons, New York, with the use of imported flax waterproof cloth.

T. D. 34296. March 19, 1914. Jute webbing. Jute webbing under 12 inches in width dutiable at the rate of 25 per cent. ad valorem under paragraph 262, tariff act of 1913.

T. D. 34297. March 19, 1914. Old jute bagging. Old jute bagging of the character represented by exhibits 1 to 4 and 7 and 8, reported in T. D. 31776, entitled to admission free of duty under paragraph 408, tariff act of 1913.

T. D. 34298. March 20, 1914. Drawback on nettings manufactured by the Taylor Textile Mfg. Co., New York, from imported cotton, silk and tinsel yarns, for the account of Louis Hamburger & Co., New York.

Recent Textile Patents

CLOTH PRESSING Machine. 1,090,611. David Gessner, Worcester, Mass.

CLOTH SPONGING Machine. 1,090,313. Benjamin Lapin, Baltimore, Md.

DYEING FIBROUS Materials. 1,089,102. Thomas Allsop, Philadelphia, Pa.

DYEING VEGETABLE Fibers. 1,090,176. Joseph Turner, Huddersfield, Eng.

DYEING and Washing Machine. 1,090,397. Walter Higgins, Bradford, Eng.

FIBERS from Other Materials, Apparatus for Separating. 1,089,661. Paul H. Minck, Bremen, Germany.

KNITTING MACHINE. 1,090.119. Walter F. Rolston, Rockford, Ill.

KNITTING MACHINE, Needle Cylinder for Circular. 1,089,021. Harry Swinglehurst, Boston, Mass.

LOOM, Pile Wire. 1,088,856. Thomas P. Walsh. Boston, Mass.

LOOM SHEDDING Mechanism, Jack Connection for. 1,085,565. Thomas Gilson, Providence, R. I.

LOOM PICKER Mechanism. 1,087,082. David H. Clark and Rufus J. Morton, Greensboro, N. C.

LOOM SHUTTLES. 1,086,970. Henry H. Wilson, New Bedford, Mass.

LOOMS, Lay and Shuttle Mechanism for Narrow-Ware. 1,088,497. Andrew Weimar, Philadelphia, Pa.

LOOM HARNESS Actuating Mechanism. 1,088,666. Joseph A. Shayer, Woonsocket, R. I.

SILK STRETCHING and Drying Machines, Fiber-Covered Metallic Tubing, A Device for. 1,088,029. Jacob Knott, Paterson, N. J.

SPINNING MULE Yarn Guide. 1,085,691. Joseph Hilberger, Garfield, N. J.

SPINNING MACHINE Roving Clamp. 1,088,036. Gus F. Roberts, Fries, Va.

SHUTTLE EYE. 1,086,446. Joseph Faltus, Fall River, Mass.

SPINNING and Doubling Machines. Spindle and Flier for. 1,086,233. W. T. Smith, Bolton, Eng.

SPINNING RING. 1,088,158. Michael H. Maloney, Chelsea, Mass.

SILK, Manufacture of Artificial Silk. 1,087,700. Herman Timpe, Amsterdam, Netherlands.

SHUTTLE OPERATING Mechanism. Electromagnetic. 1,086,444. Ernest L. De Long, Plant City, Fla.

SPINNING MULES, Cop Forming Mechanism for. 1,088,071. Gardner C. Hawkins, Winthrop, Mass.

THREAD-CUTTING Machine. 1,087,739. John A. Dowd, Fall River, Mass.

THREAD GUIDE. 1,087,502. John R. Mitchell, Montclair, N. J.

RECENT TEXTILE TRADE-MARKS REGISTERED

59,990. Hosiery. Mark: Milady. Owner: Haddon Hosiery Co., Philadelphia, Pa.

74,489. Cotton piece goods. Mark: Stairphast. Owner: Elms & Sellon, New York.

74,993. Handkerchiefs. Mark: Sanipac. Owner: The Acheson Harden Co., New York.

75,146. Woven carpets and rugs. Mark: Reco. Owner: Hardwick & Magee Co., Philadelphia, Pa.

75,150. Woven worsted, silk, cotton, mohair, etc., piece goods. Mark: Escorto. Owner: Courtaulds, Ltd., London, Eng.

61,899. Knitted sweater coats. Mark: V. R. M. Owner: Freeman C. Hogle, Bay City, Mich.

72,525. Silk piece goods. Mark: Myosotis. Owner: Courtaulds, Ltd., London, Eng.

74,461. Nettings, voiles, etc. Mark: Kewpie. Owner: Geo. Borgfeldt & Co., New York.

74,776. Sweaters. Mark: Unyto. Owner: The Empire Knitting Co., Cleveland, O.

74,821. Silk dress piece goods. Mark: Taffetango. Owner: Haas Bros., New York.

75,130. Thread. Mark: S E S. Owner: New England Cotton Yarn Co., New Bedford, Mass.

75,167. Cotton piece goods. Mark: Bric-a-brac. Owner: Converse & Co., New York.

75,318. Flannels, kerseys, broad cloths, etc. Mark: S. Slater & Sons, Inc., Webster, Mass. Owner: S. Slater & Sons, Inc., Webster, Mass.

45,769. Ginghams. Mark: Ivanhoe. Owner: Wm. Anderson & Co., New York.

75,216. Women's and children's sweaters, mufflers, etc. Mark: Fuzzy-Wuzzy. Owner: Worumbo Mfg. Co., Bath, Me.

75,464. Underwear. Mark: Double-body Pilgrim Brand. Owner: Sears, Roebuck & Co., Chicago, Ill.

75,471. Silk cotton and woolen cloth. Mark: Hombre Gordo. Owner: Luis R. Yangco, Manila, P. I.

75,516. Cotton piece goods. Mark: 9000 Range Owner: Amoskeag Mfg. Co., Manchester, N. H.

75,517. Cotton piece goods. Mark: 14000 Range. Owner: Amoskeag Mfg. Co., Manchester, N. H.

75,518. Cotton piece goods. Mark: 1001 Cloth. Owner: Amoskeag Mfg. Co., Manchester, N. H.

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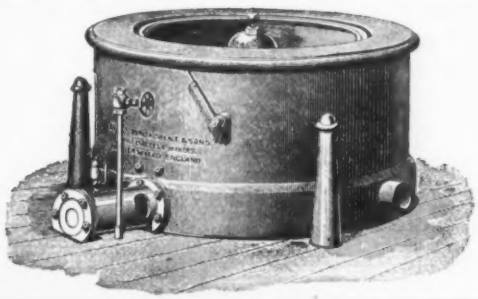

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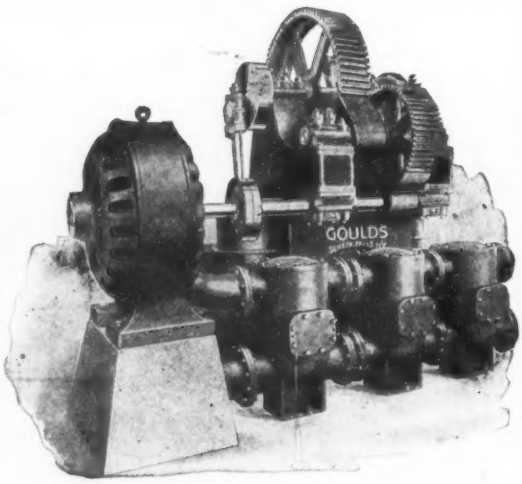

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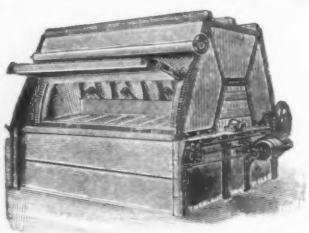

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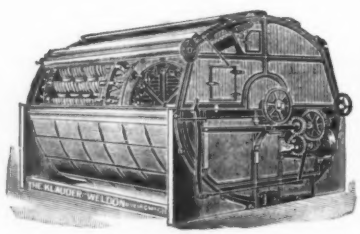

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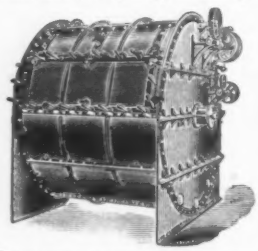

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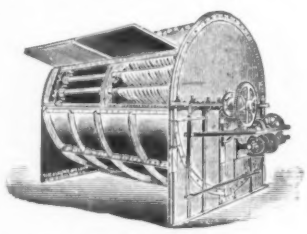

SULPHUR SKEIN MACHINE.

Buyers' Index

This department is conducted for the benefit of our subscribers. The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified Index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under headings to which they are entitled will please notify the publishers.

Accountants and Systematizers.
Gunn, Richards & Co.

Air Moistening System.
——See Humidifying Apparatus.

Architects and Mill Engineers.
Cramer, Stuart W.
Dyer, W. E. S.
Ferguson, John W.
Main, Chas. T.
Myrick, J. W. H.

Asbestos Products.
Johns-Manville Co., H. W.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
Leigh & Butler.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Saco-Lowell Shops.
Sargent's, C. G., Sons.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Bale Presses.
Saco-Lowell Shops.

Baling Presses.
Boomer & Boschert Press Co.
Philadelphia Drying Mchy. Co.

Ballers.
Saco-Lowell Shops.

Ball Bearings.
Hess Bright Mfg. Co.
S. K. F. Ball Bearing Co.

Bandings.
Lambeth Rope Corporation.
Sternberg, Fred, & Co.

Bands, Labels and Tickets.
Acme Print Co.

Baskets.
Lane, W. T., & Bro.

Beams (Steel).
Mossberg, Frank, Co.

Beamers.
Crompton & Knowles Loom Works.

Belting.
Bond, Chas., Co.
Gandy Belting Co.
Graton & Knight Mfg. Co.
Hood, R. H., Co.
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Belt Cement.
Graton & Knight Mfg. Co.

Belt Dressing.
Dixon, Jos., Crucible Co.
Graton & Knight Mfg. Co.
Stephenson Mfg. Co.

Belt Tighteners.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.

Bindings.
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Bleaching Kiers.
Arlington Mch. Wks.
Birch Bros. (Albert Birch, prop.).
Buhlmann, A. W.
Lockwood Manufacturing Co., The.
Philadelphia Drying Machinery Co.
Stearns Lumber Co., A. T.
Textile-Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Electro Bleaching Gas Co.
Marston, John P.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co., The.
Wolf, Jacques & Co.
Worden Chemical Works.

Blowers and Blower Systems.
Autoforce Ventilating System.
Carrier Air Conditioning Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Kunze, Otto.
Leigh & Butler.
Mossberg, Frank, Co.
Parker Spool & Bobbin Co.
Tebbets, E. L., & Co.

Bobbin Winders.
Altemus, J. K.
Lever, Oswald, Co.
Universal Winding Co.

Boilers.
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Boiler Graphite.
Dixon, Jos., Crucible Co.

Books.
Chittick, James.

Boxes, Box Shooks, Etc.
Pearson, J. T.

Box Tops.
Acme Print Co.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

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Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
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Brushes.
Cocker, M., & Co.
Felton, S. A., & Son Co.
Mason Brush Works.
Parks & Woolson Machine Co.

Brushing Machines.
Buhlmann, A. W.
Parks & Woolson Machine Co.

Burlers, Speckers, Menders.
Providence Mending Co.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Button-Hole Machines.
Reece Button-Hole Machine Co.

Button Sewing Machines.
Union Button Sewing Machine Co.

Calico Printers' Machinery and Supplies.
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Somerville Mach. Wks. (Albert Birch, prop.).
Taunton-New Bedford Copper Co.
Textile-Finishing Machinery Co.
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Canvas Baskets.
Lane, W. T., & Bro.

Cap Spindles.
American Textile Specialty Mchy. Co.

Carbonizing Machinery.
Birch Bros., Somerville Machine Wks.
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Schwartz, L. H. A., & Co.
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Tolhurst Machine Works.

Card Clothing.
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Smith & Furbush Machine Co.
Textile-Finishing Machinery Co.

Castings.
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Lunkenheimer Co., The.
Schofield, Wm., Co.

Caustic Soda.
Wing & Evans.

Cell Driers.
Cell Drier Machine Co.

Cement Pans.
Scaife, W. B., & Sons.

Chain Belts.
Morse Chain Co.

Chemists.
Emerson Laboratory.
Little, Arthur D., Inc.
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Chenille Machinery.
Eppler's, John, Machine Works.

Clearer Cloths.
American Felt Co.

Clocks.
Pettes & Randall Co.
Watchman's Clock & Supply Co.

Cloth Boards.
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Richardson Brothers.
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Cloth Cutting Machines.
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Firth, William, Co.
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Suter, Alfred.

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Coal Analysis.
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Compressors (Air).
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Condensers.
Allis-Chalmers Mfg. Co.
Dean Bros. Steam Pump Works.

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U. S. Conditioning & Testing Co.

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Copper Print Rollers.
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Durant Co., W. N.
Root, C. J., & Co.

Couplings (Flexible-Insulated).
Bond Co., Charles.

Crayons.
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Dixon, Jos., Crucible Co.
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Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
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Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
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Dust Collectors.
Firth, Wm.
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Dyers, Bleachers and Finishers.
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Brophy's, T., Sons.
Davidson, John F.
Globe Dye Works Co.
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Hopkinson Dyeing & Textile Works.
Lorimer's, The Wm. H., & Sons Co.
National Silk Dyeing Co.
Peerless Co.
Utica Willowvale Bleaching Co.

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American Finishing Machinery Co.
American Tool & Machine Co.
Arlington Mch. Wks.
Autoforce Ventilating System.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Curtis & Marble Machine Co.
Entwistle, T. C., Co.
Giles, J. H., Dyeing Machine Co.
Heathcote, John, & Son.
Hunt, Rodney, Mach. Co.
Hunter, James, Machine Co.
Hussong Dyeing Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
Klipstein, A., & Co.
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Leyland, Thos., & Co.
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National Laundry Machinery Co.
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Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Psarski Dyeing Machine Co.
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Smith, Drum & Co.
Somerville Mach. Wks. (Albert Birch, prop.).
Sturtevant, B. F., Co. (Drying).
Sucker, G.
Suter, Alfred.
Textile-Finishing Machinery Co.
Tolhurst Machine Works.
U. S. Hoffman Co.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.

Dye Kettles.
Stearns, A. T., Lumber Co.

Dye Sticks.
Bailey, Frank.
Klauder-Weldon Dyeing Machine Co.

Dye Tubs.
——See Tanks, Tubs and Vats.

Dyestuffs and Chemicals.
American Dyewood Co.
Atteaux, F. E., & Co.
Badische Co.
Bayer Co., The, Inc.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Electro Bleaching Gas Co.
Farbwerke-Hoechst Co.
Ford, J. B., Co.
Geisenheimer & Co.
Harding & Fancourt, Inc.
Holliday, Read & Sons.
Innis Speiden & Co.
Johnson, Chas. A., & Co.
Kalle Color & Chemical Co., Inc.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Marston, John P.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
Stein, Hirsh & Co.
Sykes, Walter F., & Co.
Thayer, Ed M., & Co.
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Wolf, Jacques & Co.
Worden Chemical Co.

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Edgings.
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"It is with a great deal of satisfaction that we can recommend the turbine which we purchased from the B. F. Sturtevant Company in the strongest possible manner

The 20 K.W. unit has been in operation for the past two years and has given us perfect service without any exception.

Hoping this is satisfactory and asking that you advise if we can be of further assistance, we remain."

The letter quoted above was written by a large Western Manufacturer to a Western Lumber Company in response to a request for their opinion of the Sturtevant Turbine. The names of both these companies will be furnished on request.

Could a stronger recommendation of the Sturtevant Turbine be written? Two years of "perfect service without exception" and the Sturtevant Steam Turbine will continue to give this perfect service for years to come.

Sturtevant
(REG. U. S. PAT. OFF.)

Steam Turbines

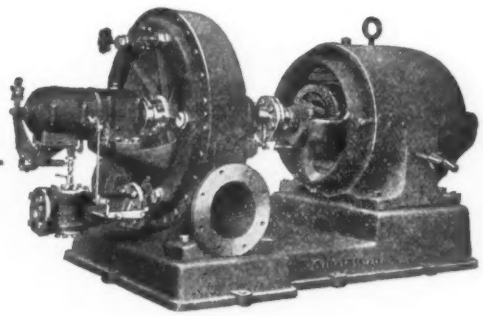
are small users of steam, the forged steel solid rotor with milled-in buckets and the special nozzles and reversing chambers insure this. They are durable, the solid rotor can't wear out or fly to pieces. They are simple, there is nothing about them that can give trouble. Sturtevant Geared Turbine is adapted for driving any apparatus at any speed efficiently.

It will pay you to investigate this somewhat different turbine.

Ask for Catalog 210-T

B. F. STURTEVANT COMPANY, HYDE PARK, BOSTON, MASS., and all principal cities of the world

Selling Agents for Sanford Riley Stoker Company, Limited,
"THE RILEY STOKER"



Electrical Construction.
Allis-Chalmers Mfg. Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electrical Heating Devices.
General Electric Co.

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Cooper Hewitt Electric Co.
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Westinghouse Electric & Mfg. Co.

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Chapman Electric Neutralizer Co.

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National Laundry Machinery Co.

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Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.
Salem Elevator Works.

Employes' Time Recorders.
Pettes & Randall Co.

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American Water Softener Co.
Scaife, W. B., & Sons.

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American Felt Co.

Felt Hardeners.
Farrel Foundry and Machine Co.

Felt Rotary Washers.
Hunt, Rodney, Machine Co.

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Farrel Foundry and Machine Co.
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Johns-Manville Co., H. W.

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Keyway Bronding Machine.
Burr & Son, John T.

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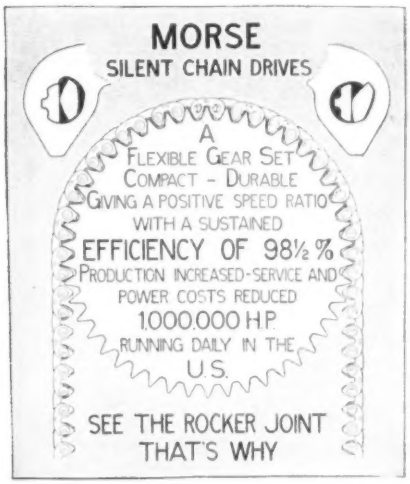

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Look for it

At Mechanics Hall Boston

April 27th—May 2d, 1914

Space 64, Dept. A

Use Morse Silent Chains for Textile Drives

98½% efficiency means 5 to 20% increase in production owing to absence of slippage and maximum machine speed at all times.

As to durability, we have drives (many of them) in the textile field showing considerably over **25000 operating hours service** and still running well.

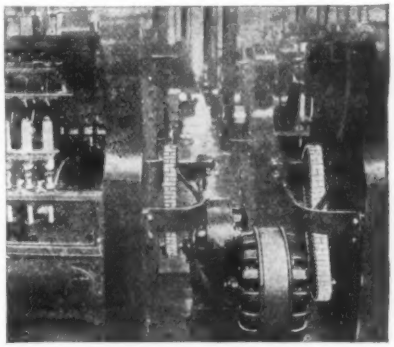
That means very low maintenance and repair costs.

In addition, MORSE Silent Chain Drives are extremely quiet in action and are convenient to install where substituted for other forms of transmission.

Get in touch with our New England Representative at the Show, or later at 141 Milk St., Boston, or, write us direct for information. We will gladly figure out a possible saving for you.

Morse Chain Co.

Ithaca, N. Y.



5 h. p. Morse Silent Chains Driving Textile Spinning Frames

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Paxton & O'Neill.
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Leigh & Butler.
Lockwood Manufacturing Co., The.
Philadelphia Drying Machinery Co.
Smith, Drum & Co.
Textile Finishing Machinery Co.

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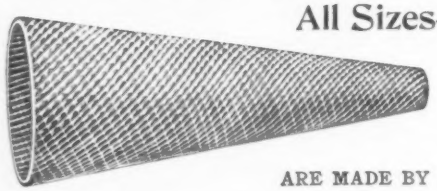

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Publisher's Page

Special Notice to Present and Prospective Advertisers

The May number of the Textile World Record will no doubt be one of the most important issues we have ever published, for the week of April 27th to May 2nd will be a history maker so far as textile matters are concerned

April 27th and 28th will be the meeting days of the American Cotton Manufacturers Association at the Waldorf-Astoria Hotel, New York City. Tuesday and Wednesday, the 29th and 30th, are the convention days of the National Association of Cotton Manufacturers to be held in Boston. The Textile Exhibition, held under the auspices of the Textile Machinery Exhibitors Association, is to take place at the Mechanics Institute Building that same week. Acceptances have been received by the Exhibitors Association from these different associations, who will be guests during the week of the show, as well as the Southern Textile Association and the Southern N. E. Textile Association and the different overseers' associations.

These different conventions, as well as the Exhibition, which is to be the greatest textile show ever held in the world, will be the special features of the May number. So much will have been seen and heard by the visitors that an issue containing the proceedings and reports of the conventions and the new inventions shown at the Exhibition, presented in a complete and concise form, will be much appreciated by the textile manufacturers of the country generally. We will report fully these conventions and the exhibition, and feel confident that this issue will be looked for and appreciated greatly by the trade in general.

What an opportunity for special advertising! Our regular guaranteed edition will be greatly increased for this particular number.

A good many of our customers have already engaged extra space. Have you?

Notwithstanding the increased edition our regular advertising rates will be charged.

This is an opportunity not often presented and as the available space is limited those wishing to be represented in this Convention issue with new advertisements or increased space are urged to advise us promptly.

The 1914 Textile Directory

The 1914 revision of the Official American Textile Directory with all lists brought up-to-date, is now ready. This is the 20th year of publication of the Official Directory which is now recognized as the leading trade directory of the United States and Canada.

As in former years there are two editions, the Office Edition and the Travelers' Edition. Either style can be supplied you on order.

This Directory contains reports of all textile manufacturers in the United States and Canada, including dye houses, bleacheries and finishing plants.

In addition there are lists of selling agents, yarn dealers, classified list of manufacturers, etc.

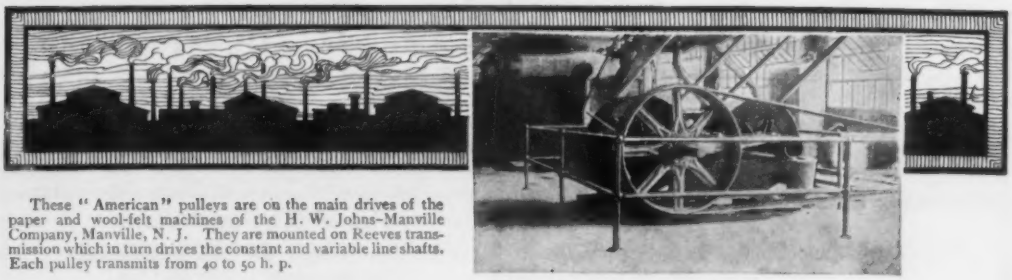
For full description see review under the heading "New Publications" in this number.

It is becoming recognized as a matter of business economy to purchase a new Directory every year. The saving on misdirected letters and other matter and on railroad fares for personal calls is many times the expense of a new Directory.

The price, postage or express prepaid, is $2.00 for the Travelers' Edition and $3.00 for the Office Edition. Vest Pocket Editions $1.00 a copy.

Monthly Circulation Statement

Of this edition 6,350 copies are printed and all are needed.



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Overseer of Spinning in woolen mill; has worked on wool, shoddy and cotton waste and silk noils; familiar with Davis & Furber and Johnson & Bassett machines; 37 years of age, married; will not go to Me., Vt., Pa., N. J., West, South or Canada; good reference.
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Overseer of Carding in woolen mill; has worked on all kinds up to 9 run; familiar with Davis & Furber, Cleveland, Smith, Furbush, Lombard, Platt and Gatham cards; will not go West, South or to Canada; good reference.
6166, Textile World Record, Boston, Mass.

Sewing Machine Adjuster; has worked on ladies' underwear; familiar with Singer, Wilcox & Gibbs, Union Button, Merrow, Union Special and Metropolitan machines; will not go West, South or to Canada; 28 years of age; good reference.
6167, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; would consider good second hand position; has worked on all kinds of woolens and worsteds, also cotton worsteds; familiar with Knowles & Crompton, cotton worsted and woolen looms; 31 years of age, married; will not go to Me., Pa., N. Y., N. J., West, South or to Canada; good reference.
6168, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on plain and fancy worsteds, cotton worsteds, dress goods and fancy woolens; familiar with Knowles, Crompton & Knowles and Crompton & Thayer looms; 33 years of age, married; will not go South or to Canada; good reference.
6169, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; has worked on worsted, woolen, cotton worsted and piece dye goods, kerseys and meltons; familiar with Birch Bros., Parks & Woolson, Rodney Hunt and Davis & Furber machines; 32 years of age, married; will not go to Vt., Pa., South or to Canada; good reference.
6170, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on all kinds of worsted suitings and dress goods; familiar with Crompton & Knowles looms; 41 years of age, married; will not go to Me., N. H., Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
6171, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen or worsted mill; has worked on all grades of kerseys, broad cloths, carriage cloths, dress goods, meltons, cheviots, chinchillas, worsteds, cotton mixed goods, piece dyes and wool dyes; familiar with all makes of machinery; 44 years of age, married; will not go West, South or to Canada; good reference.
6172, Textile World Record, Boston, Mass.

Overseer, superintendent, or agent in bleachery and finishing plant; overseer in cloth room or finishing room in cotton mill; has worked on all classes of cotton goods; has had experience in bleacheries on heavy clay filled work such as sign cloth, bag goods, shoe linings and muslins; 46 years of age, married; familiar with all makes of machinery; good reference.
6173, Textile World Record, Boston, Mass.

Master Mechanic in medium sized mill or assistant in large; familiar with all makes of machinery; 30 years of age, married; good reference.
6136, Textile World Record, Boston, Mass.

Cost Clerk or assistant superintendent in cotton mill; 42 years of age, married; has had a wide experience in this line; good reference.
6137, Textile World Record, Boston, Mass.

Overseer of Spinning, Spooling, warping and twisting in cotton mill; has worked on knitting yarns and fine yarns from 8s to 120s, short and long stock; familiar with any make of spinning frames or winders, twisters, reels, slashers, warpers and D. & F. mules; 39 years of age, married; will only go to New York State; good reference.
6138, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; has worked on all kinds of woolens and worsteds; familiar with all kinds of machinery; 46 years of age, married; good reference.
6139, Textile World Record, Boston, Mass.

Boss Cutter, designer, or boss finisher in knitting mill; has worked on cotton and worsted knit goods, jerseys, bathing suits, athletic knit goods and sweater coats; familiar with the Eastman, Ballard and Metropolitan electric cutters; 26 years of age, married; will not go to N. Y., Pa., but prefers the West; good reference.
6140, Textile World Record, Boston, Mass.

Overseer of Carding in woolen mill; has worked on about all kinds of stock, all wool fine counts, cotton mixes, shoddy, all grades of goods, also carpets and worsted goods; familiar with all makes of cards, feeds and condensers; 50 years of age, married; will not go West, South or to Canada; good reference.
6142, Textile World Record, Boston, Mass.

Philadelphia Textile School

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Oldest in America
Most Complete in the World

Endorsed by the Leading
Educators and Manufacturers

Cotton, Wool, Worsted and Silk

Instruction given in Designing, Weaving, Carding, Spinning, Chemistry, Dyeing and Finishing

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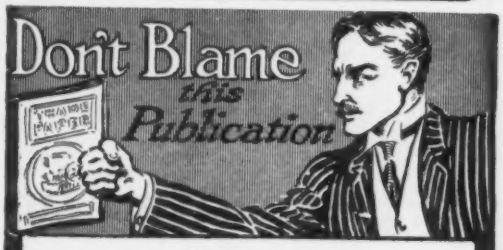

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Shows samples of good ads and their cost

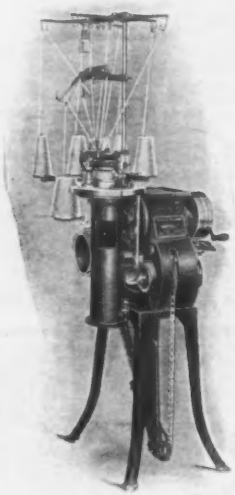
Shows how to advertise step by step without $10,000 appropriations

Every Manufacturer who wants his advertising efficient and economic should have a copy

Bukey Service
32 WAVERLY PL. NEW YORK.

Here's the Machine that Saves 7 to 15 Cents a Dozen

On the Manufacturing Cost of Half Hose



IMPROVED MODEL F MACHINE

Isn't it interesting to you to know that our IMPROVED MODEL F MACHINE for making half hose will effect a saving in cost of manufacture of from 7 to 15 cents per dozen?

The machine is simple, requires no skilled operators, makes all qualities and gauges.

We will gladly send you samples and full information.

Established 1805

SCOTT & WILLIAMS, INC.

88 PEARL STREET, - BOSTON, MASS.

366 Broadway, New York 236 Chestnut St., Philadelphia 6 Devereux St., Utica, N. Y.

KNITTING MILL NEWS

.....

New Mills.

*Delaware, Wilmington. The mill to be built here for the Way Muffler Company, of Philadelphia, will be six stories high and will cost approximately $200,000. The roof of the building is to be fitted up for the use of employes and will be equipped for such games as hand ball, basket ball, etc. Especial attention is to be paid to the heating and ventilating system throughout the mill. There will also be erected a separate dyehouse and possibly a power plant, although consideration is being given to the matter of purchasing power from a local company. Boilers will be installed for the use of the dyehouse. It is understood the capital stock of the company is to be increased to $1,250,000, classified as $750,000 common, and $500 seven per cent. preferred. $100,000 has been subscribed to the preferred stock by residents of Wilmington.

*Illinois, Chicago. The Vassar Swiss Underwear Co. is moving from 3617 South Ashland Ave. to its large new plant at 2545 West Diversey Ave.

Mississippi, Yazoo City. W. H. Kline, president and treasurer of the Yazoo Yarn Mills, heads the project to establish a knitting mill in Yazoo City, with capital stock of $50,000.

New York, Brooklyn. The W. & W. Knitting Mills, Inc., reported organized in January, are manufacturing all kinds of fancy knit goods for men, women and children at 108 Ambois St., on 4 knitting machines and 5 sewing machines. They buy 2/18s and 2/14s worsted yarns. N. Wesband is buyer.

North Carolina, Burlington. A new hosiery mill is to be started here to manufacture women's and children's hosiery. W. W. Brown heads the project. The building to be used is 100 by 60 feet.

*North Carolina, East Durham. Manufacturing has been begun by the Louise Knitting Mills Company reported incorporated in January with authorized capital stock of $50,000. The company has 60 knitting machines and 10 sewing machines and is making 176-needle ribbed top ladies' hose and half hose, operating by electric power. The product is sold in the grey. W. T. Cole is president and E. C. Stone is treasurer, superintendent and buyer.

*North Carolina, Elizabeth City. It has not been decided whether a new mill will be erected or whether quarters will be leased by the new Pasquotank Hosiery Company, reported incorporated a week ago with authorized capital stock of $50,000. Manufacturing will be started with a capacity of 300 pairs of hosiery per day. If it is decided to lease a building, machinery will be installed at once. If it is decided to bnild, there will be some delay in getting in operation. F. V. Scott, M. G. Morrissett and D. Van Horn are the men interested.

*North Carolina, Morganton. A building is being erected for the Vaudois Knitting Mills, Inc., recently organized with capital stock of $125,000. They are to begin business with $25,000 subscribed. It is expected the plant will be equipped about June 1 with 100 knitting machines and 4 sewing machines, making hosiery. B. F. Davis has been elected president and John Long, treasurer and buyer. The equipment will include a dyeing department and a steam power plant.

*North Carolina, Old Fort. The contract for the construction of a mill building, 150 by 75 feet, has been awarded by the Century Knitting Mills. As noted in previous reports this company is moving here from South Boston, Va. F. A. Lukin is president; F. M. Bradley, treasurer; C. F. James, vice-president and manager. Messrs. Lukin and James attend to the buying.

*Pennsylvania, Carlisle. Bids are being received by the Interwoven Mills, Inc., of New Brunswick, N. J., and Martinsburg, W. Va., for construction of a mill 107 by 150 feet, to be operated as branch plant. It is believed that the contract will be awarded and construction work started within a few weeks.

*Pennsylvania, Cressona. Charles Beck, a shirt manufacturer, previously reported installing six knitters and four sewing machines for the manufacture of a line of women's twenty-five cent union suits, will begin manufacturing about March 15. The knitting department is located in the basement of the shirt factory.

Pennsylvania, Philadelphia. Under the name of the Rockledge Hosiery Mills, Heaton & Wilson have equipped a plant at 108 Drake Ave., Fox Chase, in which they have installed 16 knitters, 2 loopers and 1 sewing machine, which they are operating on 220-needle ladies' art. and natural silk plaited hosiery, which they are finishing and selling direct.

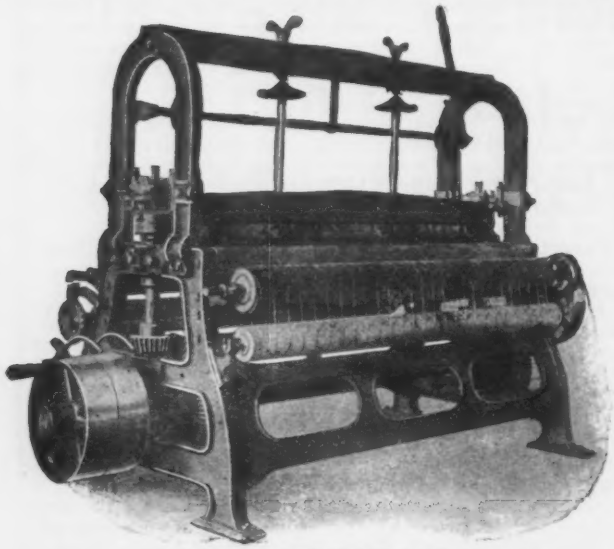
Pennsylvania, Philadelphia. The equipment for the new knitting plant to be started up by Harry Sarfert has been ordered and quarters secured at Mascher & Jefferson Sts. The manufacture of seamless hosiery will soon be started.

*Tennessee, Charleston. A one-story brick mill is to be built for the Charleston Hosiery Mills, recently incorporated with authorized capital stock of $50,000. The company has organized with W. J. Eldredge, president; T. B. Saulpaw, vice-president; and J. E. Quisenberry, cashier of the Hiwasse Bank, Charleston, secretary and treasurer.

*Tennessee, Rogersville. The new Rogersville Knitting Company, recently incorporated with authorized capital stock of $50,000, plans to erect a brick mill at a cost of $8,000 and to install equipment costing $12,000, for the manufacture of hosiery. Lines of fancy knit goods may also be made. Electric power will be used.

Texas, Austin. Z. T. Fulmore is interested in organizing a company to establish a hosiery knitting mill in Austin. The initial capacity is to be 100 dozen daily.

CHINCHILLA MACHINE



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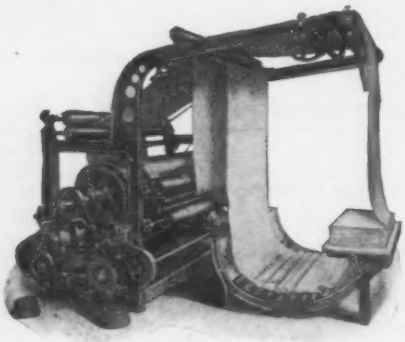
Some of the Most Particular Mills have just purchased this

WOOLEN NAPPER

It is double acting with twenty gear driven workers running in S K F ball bearings We first put ball bearings on napper workers and all the other fellows had to follow



The energies are positively driven with an eminently easy change method

Convenience
Durability and Production
are combined here

Parks & Woolson Machine Co
SPRINGFIELD VERMONT

IS IT FAST? WILL IT WASH?

This is the striking title of a booklet recently issued in the interest of fast colors by the Badische Co. of New York City. The title suggests the nature of contents, which are not of a technical nature, but designed to inform the selling end of the industry what is so well known by the manufacturing and technical branch, i. e., that the "Indanthrene" dyes may be depended upon to produce fast colors. They have created a new standard for fastness and brilliancy and meet the demand of the consumer who now insists on having fast colors in every line of fabrics. The Badische Co. has been identified with the development of revolutionary changes in the dyestuff and chemical industry.

We quote from this little booklet: "The introduction of synthetic Indigo by the Badische Anilin-&-Soda-Fabrik in 1897 greatly lowered its cost, simplified its application and placed it on a scientific basis. The immediate practical result has been, that Indigo is used on an ever increasing scale in the production of overall goods (denims) for working garments worn by artisans of all classes everywhere, as well as for navy blues with white designs, in percales and similar fabrics which are so largely used the world over for women's house and working dresses. Nothing has yet been found which is as well suited as Indigo for these and many other purposes, since it combines minimum cost, brilliancy of color and satisfactory fastness. In fact the word "Indigo" to the consuming public is a guarantee of a durable and satisfactory color."

Unfortunately, however, Indigo produces only a Blue, while the trade requires every shade in fast and brilliant colors. To. Dr. Rene Bohn. Director of the Badische Anilin-&-Soda-Fabrik. Ludwigshafen a/Rhein, should be given credit for the discovery of the series of dyestuffs derived from Anthracene, known as Indanthrene Dyes, which produce fast colors in every desired shade and tone. The introduction of these dyes in the cotton industry has created a new standard for fastness and brilliancy, in which combined respects they excel any colors heretofore known. Indanthrenes are actually permanent while the fiber lasts, meeting therefore every trade requirement, a fact so well demonstrated that today the word "Indanthrene" (pronounced In-dan-threne) is synonymous with "Fast Colors." There is probably no factor of greater importance in the manufacture of cotton goods than the fastness of the colors, in that it constitutes a most attractive selling argument, increases their popularity, and broadens the market for them.

Permanent colors create permanent trade. The insistent demand of the consumer for fast colors makes it imperative that the retailer, the jobber, the cutter-up and the textile manufacturer recognize the question of fastness of color as a most important one. Is it fast? Will it wash? is now asked by every woman at every counter and by every buyer of colored cotton goods of the maker.

Prior to the introduction of Indanthrene Dyes it was not possible to produce a full range of fast colors on cotton: this narrowed the consumption of colored goods and brought plain white fabrics into popular favor, more especially for washable goods. It is now, however, perfectly feasible to fully meet the demand of the consumer who insists on having fast colors in every line of fabrics. The user of low-priced goods is certainly justified in demanding a garment which is presentable during the life of the fabric, while in the medium and higher-priced goods fast colors are obviously a necessity.

The manufacturer of cotton goods can now exploit the combined advantages of fast colors, mercerization and attractive designs to produce fabrics that compare favorably in luster, brilliancy of color and finish with the product of the higher-priced fibers.

It is worthy of special notice that the United States Government has long realized the great importance of permanent colors to the domestic trade, and that for many years Alizarine, Indigo and Indanthrene colors have been admitted free of duty, to the advantage of all concerned.

It is particularly gratifying to note here that many of our domestic manufacturers have been among the first to recognize the situation and that today Indanthrene colors may be had in practically every style and quality of woven and printed fabrics, guaranteed to be fast to washing and practical wear.

There is not the slightest doubt that the question of fast colors has become of vital importance to the general public. It is obvious, then, that the matter rests finally with the dealer, who will naturally always discriminate in favor of fast colors and who has only to be convinced that they are obtainable at reasonable cost in order to demand them on an ever increasing scale.

SOLUBLE SOFTENING OIL

The Arabol Mfg. Co., 100 William St., New York City, highly recommend their soluble softening oil for sizing, as uniform, reliable and not influenced by temperature. It is easy to handle, lets the threads divide well in the lease rods and the cylinders of the slasher remain perfectly clean, while it gives a smooth finish to the warps. It gives very good results on strong and closely woven goods.

The Morse Chain Company, of Ithaca, N. Y., manufacturers of silent chains for transmitting power will have a very attractive exhibit in Space 64, Dept. A, at Mechanics Hall.

In addition to the usual decorations of plants, etc., they will show a 100 h. p. silent chain on the sprockets, itself driven by a very small silent chain. This is to show the smooth and silent action of chain drives and the small amount of power required to move at no machine load.

A large glass illuminated sign in the rear of the booth will illustrate a section of a silent chain on sprockets and above this the ends of two links are shown with the "rocker-joint" pins exposed.

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to visit OUR EXHIBIT at

Fourth National Textile Exhibition

MECHANICS BUILDING, BOSTON, MASS.

April 27th to May 2nd, 1914

SPACE 2, DEPT. A, MAIN FLOOR (*near the stage*)

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Automatic — **The Kron Scale** — *Springless*

"LOAD AND LOOK"

Tells at a Glance—Correct Weight—Instantly

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No Vibration—Pointer Stops "Dead"
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Kron Scales *Save Time*—
That Means *Money*

Always accurate and reliable—always ready

There is a type of Kron, either Dormant or Portable, to meet every requirement of any business where speed and accuracy are essential to highest efficiency in weighing.

Leading Textile Mills—in fact every business where the saving of time and labor, the elimination of errors and guesswork, mean a saving of money, are using this modern method of weighing.

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for automatic deduction of tare, so that only the net weight is shown on the dial.

American Kron Scale Company
39 Cortlandt Street, New York

Western Representative—
Spencer Otis Co.
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Chicago, Ill.

Write for Catalog

WOOLEN MILL NEWS

*Massachusetts, Franklin. Work has been completed on the addition to the plant of the Franklin Yarn Co., which is to be used as a card room. This new building is 75 by 110 feet, reinforced concrete construction, with saw-tooth roof. Additional machinery will be installed, including a new set of cards and two mules, which will increase their output of woolen and merino yarns about 15 per cent. A new office building is also being erected separate from the mill.

*Ohio, Cleveland. Stockholders of the Cleveland Worsted Mills Company have confirmed the action of the directors in increasing the capital stock from $3,000,000 to $10,000,000. Details of the proposed enlargements have been given previously. Plans for the various additions, which are being prepared by George S. Rider & Co., are progressing.

*Oregon, Bandon. There is nothing definite to report regarding the removal of the Bandon Woolen Mills to Cooston. They state that they are considering moving and enlarging the plant but can make no definite statement at this time.

Oregon, Eugene. Some new machinery has been purchased by the Eugene Woolen Mill to replace old equipment. The concern has received more orders in the past season than could be filled and plans for increasing the plant are under consideration.

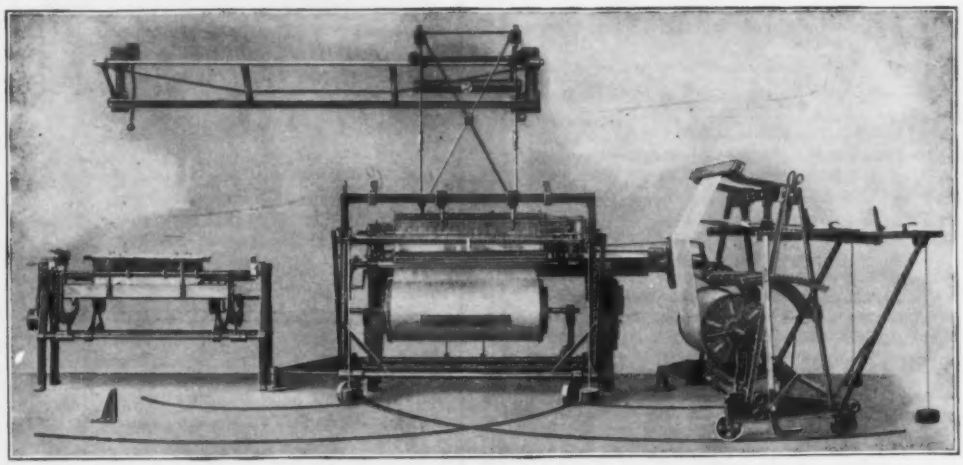
Oregon, Portland. Contract has been awarded for the construction of a brick addition to the plant of the Portland Woolen Mills. The enlargement will be 2 stories high, 65 by 90 feet. Scouring and carbonizing departments will be installed in the new space. The freight address is St. Johns.

Oregon, Stayton. Plans are being made for the erection of a warehouse for the Wilbur Woolen Mills Company. Other changes are also contemplated, including the erection of a mattress factory which will have 100 sewing machines. Blankets, mackinaws and batting are manufactured on present equipment of three sets of cards and twelve broad looms. John P. Wilbur is president, superintendent and buyer.

Pennsylvania, Philadelphia. D. H. Stroud, a manufacturer of rugs and carpets under the name of the Columbia Rug Mills at 4060 Orchard St., Frankford, has removed his equipment to a new building which he has erected at 11th and Allegheny Ave.

*Rhode Island, Providence. Work has only just been started on the plans for the dyeing and finishing department to be built by the Colwell Worsted Mills. They will have the new departments equipped some time in the fall. George M. Baker is president. Ralph Colwell secretary and treasurer. It is understood that the building will be 3 stories high and 199 by 45 feet.

250 ENDS AND MORE PER MINUTE



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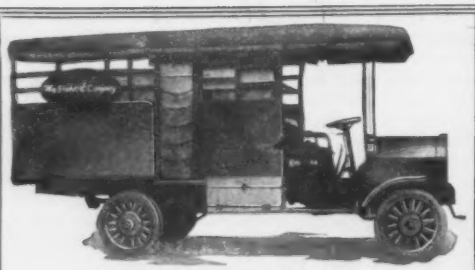
ROCKFORD, ILL. BOSTON, MASS. GREENVILLE, S. C.



KisselKar Truck in Service of Wm. Stickel Co., Jersey City, N. J.

KisselKar Trucks are the Choice of Prudent Buyers

Up and alive business men measure time in dollars and cents—that is why they sooner or later buy motor trucks.

Discriminating buyers are preferring KisselKar Trucks when it comes to a choice.

They look carefully into the duty record of the truck, then to the permanency and responsibility of the makers—for upon these things depend the worth of the truck next year and in the years to follow.

KisselKar Trucks are good trucks, strong, simple, economical in fuel and tires and responsive to every demand. In more than two hundred lines of business they are being used with the utmost satisfaction to owners.

They are built by a corporation that is here to stay, one which will stand the most rigidinquiry as to its integrity and resources.

KisselKar Service

KisselKar Service is a definite, specific service *written into the sale*. There is no chance for misunderstanding — the guarantee covers everything plainly.

There are six capacity sizes in KisselKar Trucks—1500 lbs., 1, 1½, 2½, 3½ and 6 tons. Bodies to suit requirements.

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528 Kissel Ave., Hartford, Wis.

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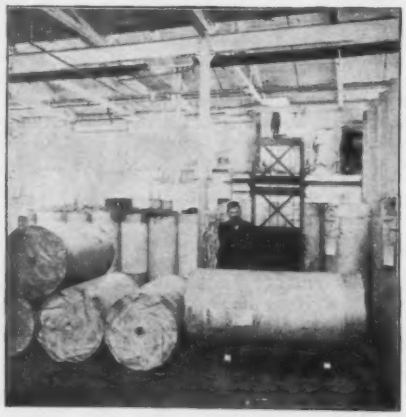
KISSELKAR TRUCKS

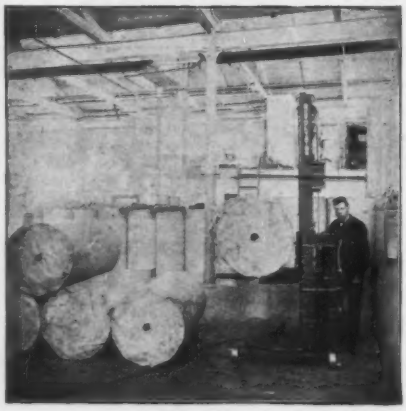
REVOLVATOR



REVOLVATOR

There are many places in your warehouse, storeroom, shipping department, and around the plant generally, where you are spending money for unnecessary hands, or losing money by not utilizing all your storage capacity. The Revolvator, with its Revolving Base, is designed to meet and overcome adverse storage conditions.

You Cannot Afford To Be Without a Revolvator



IT REVOLVES

We have on hand a large number of second hand Steel Tiering Machines, taken in trade for Revolvators. These machines are all in first-class working order. For sale at less than half price.

Write for our Bulletin W28—THE REVOLVATOR

N. Y. Revolving Portable Elevator Co.

349 Garfield Ave., Jersey City, N. J.

WOOLEN MILL NEWS

Pennsylvania, Philadelphia. Local architects are preparing plans for alterations and a three-story addition, 20 by 40 feet, to factory of John & James Dobson, Inc., located at the Falls of Schuylkill.

*Rhode Island, Woonsocket. Construction work has been completed on the addition to the Samoset Worsted Mills and machinery is now being set up. As noted in a previous report the equipment is being increased to 10,200 spindles. Bradford spun worsted yarns up to 2/50s are manufactured.

*Wisconsin, La Crosse. E. A. Stickler, proprietor of the North Side Yarn Mills, which were burned early in the month, is rebuilding and expects to be running again in about 60 days. He will have one set of cards, 2 mules, a twister, 6 knitting machines and 2 looms. The business as formerly will be chiefly along the line of manufacturing knitting sale yarns.

.....

Mills Starting Up.

Connecticut, Central Village. The plant of the Central Yarn Company, owned by the Plainfield Woolen Company, is to be started up. This department has been shut down for a long time.

New Hampshire, Gilsum. Some of the machinery in the Gilsum Woolen Mill has been started up by John H. Williams, who recently took over the plant. Mr. Williams was formerly agent of the Kennebec Mills of the American Woolen Company at Fairfield, Me.

*Pennsylvania, Stroudsburg. A new company has been organized under the name of Thomas Kitson & Son, Inc., with capital stock of $100,000 to take over and operate the Stroudsburg Woolen Mill of Thomas Kitson & Sons. The mill was shut down several months ago on account of unsatisfactory labor conditions and it was noted in recent reports it is being started up with the assistance of Stroudsburg manufacturers and business men under the management of Robert L. Alexander, formerly of Maynard, Mass. The incorporators of the new company are Thomas J. Kitson, Samuel E. Schell, and Frank B. Michaels.

COTTON MILL NEWS

*South Carolina, Graniteville. Work is going forward on the extensive enlargements and improvements at the plants of the Graniteville Mfg. Company here and at Vaucluse. Last November the capital stock was increased from $600,000 to $1,000,000 to provide funds for replacing the old weaving equipment at the Graniteville Mill with 700 automatic looms, and doubling the Vaucluse Mill. In addition electric power is being installed in the Vaucluse plant.

South Carolina, Rock Hill. Two thousand additional spindles with preparatory machinery and 100 additional looms are to be installed by the Hamilton Carhartt Cotton Mills, manufacturers of denims, which they convert into overalls. This new machinery will be set up in the space formerly occupied by the cutting-up department, which has been moved to another location.

Why did the Holeproof Hosiery Co.

adopt the Kaumagraph Process? Their enormous output is marketed at a small margin of profit. They demanded a trade-marking process that was economical, above everything. The almost negligible cost of the Kaumagraph Process, its rapidity, the beauty and permanence of marking quickly determined its adoption.

The Kaumagraph Process is the only process that will mark successfully every kind of fabric—dark or light, rough or smooth, ribbed or plain, from silk to blankets. It stamps any design or trade-mark, however elaborate, on any fabric in any color (silver and gold also) with absolute uniformity and perfect detail.

You buy Kaumagraph stamps **ready for use,** either in packages or in rolls of thin paper tape. They are applied automatically to goods during some process of manufacture, or very rapidly by hand with unskilled labor. Their cost is insignificant, especially in large quantities.

Silver and gold stamping costs no more than colors by the Kaumagraph System. It is much more rapid than any of the decalcomanie processes because Kaumagraph stamps do not need to be cut apart or wet. Kaumagraph impressions are dry, do not blurr or offset, and as the composition tends to penetrate the goods instead of remaining on the surface, the Kaumagraph stamp is more permanent than any other on the market.

The Kaumagraph Process is used on practically all fabrics now being advertised. Manufacturers who are considering trade-marking their goods or adopting more efficient and economical methods of trade-marking are urged to write us frankly without thought of obligaton. Meanwhile use the coupon now.

TEAR OFF AND MAIL THE COUPON

Kaumagraph Co., 209 W. 38th St., New York
Send me samples and more information
My name, address and firm name are written below

DIETZ "BLIZZARD"

MILL LANTERN

(Approved by Insurance Inspection Department)

This lantern represents the highest type of WATCHMAN'S LANTERN on the market. Burns kerosene oil. Made in two sizes:

No. 1—13¾" High, ⅝" Wick, 6 Candle Power
No. 2—14¾" High, 1" Wick, 10 " "

Holds sufficient oil to burn 10 hours

Locking attachment prevents your watchman tampering with flame

Dietz Mill Lanterns are for sale by all dealers in hardware and mill supplies

DIETZ LANTERNS

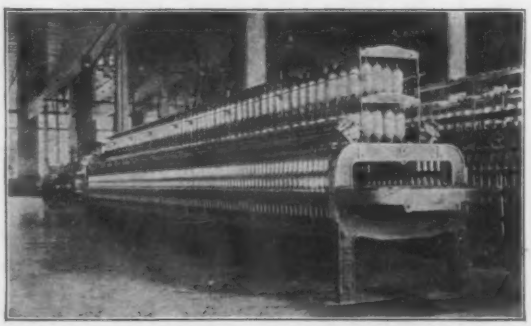
R. E. DIETZ COMPANY

Largest Makers of Lanterns in the World

DIETZ LANTERNS

GREENWICH AT LAIGHT STREET - - - NEW YORK CITY

THE BROWN SPIN-WRIGHT



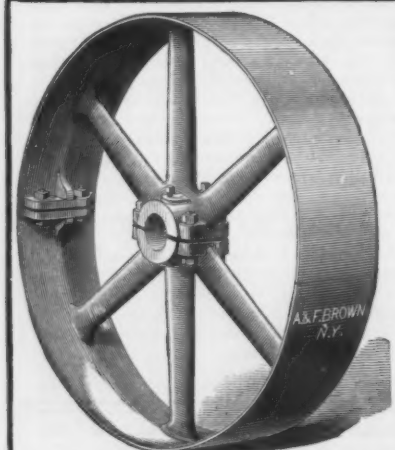
Commercial Frame

As Operated Successfully in a Large Mill

For Particulars Address

The Brown Spin-Wright Cotton Co.

32 Union Square, New York, N. Y.



THE A. & F. BROWN CO.

ENGINEERS
FOUNDERS, MACHINISTS AND MILLWRIGHTS
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GEARS

SHAFTING, PULLEYS, HANGERS
SPLIT PULLEYS
FRICTION CLUTCH COUPLINGS
BALL COLOR MILLS
ROPE DRIVES

Special Machinery Built to Drawings and Specifications

WE LAY OUT, MAKE THE DRAWINGS, FURNISH THE MATERIAL AND ERECT IT

SEND FOR CATALOGUE WORKS: ELIZABETHPORT, N. J.

KNITTING MILL NEWS

Enlargements and Improvements.

*Alabama, Anniston. It is expected the addition to be built for the Anniston Knitting Mills Company will be equipped ready for operation by July 1. The enlargement will be 2 stories high, 75 by 100 feet, with a separate dyehouse, 2 stories high, 30 by 50 feet. Construction work is being done by the McKibbon Construction Company from plans of Lockwood, Greene & Company. The present equipment is to be increased about 100 per cent. Recently the stockholders authorized an increase in the capital stock from $15,000 to $100,000. Children's ribbed cotton hosiery is manufactured on present equipment of 85 latch needle knitting machines, and the product is dyed and finished. E. L. Field is treasurer and buyer, and A. L. Tyler is president.

*Illinois, Chicago. Another story has been added on the mill of the Lorenz Knit Goods Mfg. Company, making the mill three stories high. Recently the capital stock was increased to $200,000 to provide for this enlargement. Sweaters, cardigan jackets and fancy knit goods are manufactured.

Minnesota, Fergus Falls. It is proposed to add a number of underwear machines to the equipment of the Fergus Falls Knitting Works.

New Hampshire, Tilton. G. H. Tilton & Son have added a looping department to the plant here. It is reported they intend to add a knitting department.

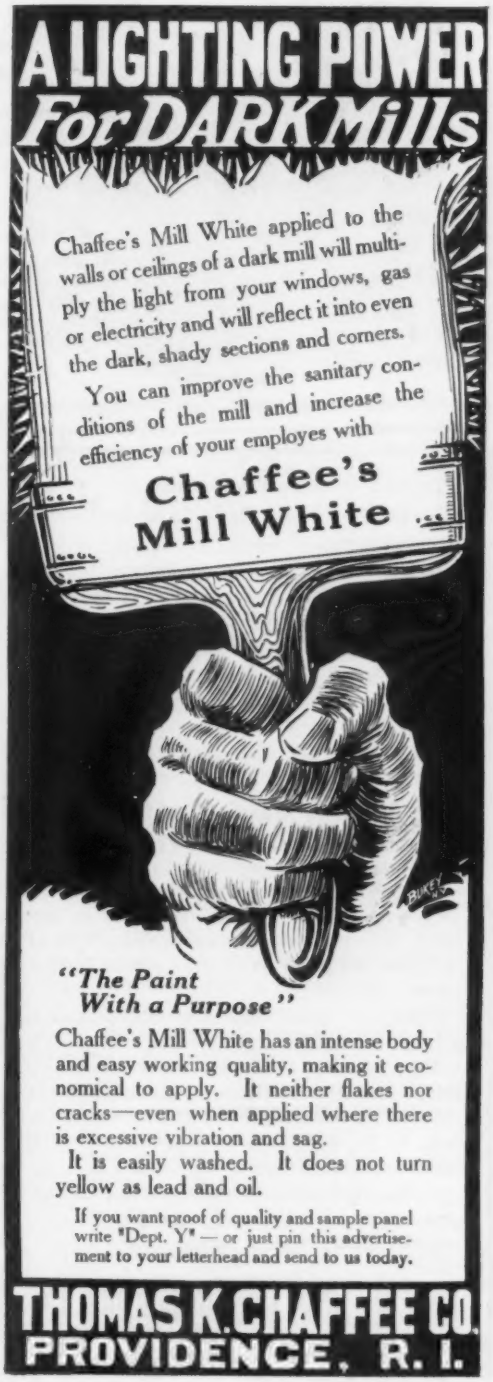
New Jersey, Camden. Plans have been completed for the erection of a new building to be used as an addition to the plant of the General Gas Mantle Co. located at 4th and Jefferson Sts., where they are making a line of incandescent gas mantles.

*New York, Cohoes. The B & L Textile Company has completed the femoval of its plant to the basement, first and fifth floors of the Victor Mill, No. 1, on Ontario St., and is getting settled in the new quarters. The output of the company is to be doubled.

*North Carolina, Durham. The new mill to be erected for the Durham Hosiery Mills Company, for which contracts have just been awarded, will be 410 by 106 feet. The storage and warehouse facilities are to be largely increased. The waste spinning plant which is to be installed will ultimately have 6,400 spindles and will be located in Durham.

North Carolina, Elizabeth City. Work has been completed on the foundation for the new mill to be built by the Elizabeth City Hosiery Company, which will be known as the Avalon Mill. Misses' hosiery will be manufactured in the new plant on equipment of 160 knitting machines, operated by electric power.

North Carolina, Hendersonville. Plans are under consideration for a considerable increase in the capacity of the Freeze-Bacon Hosiery Mills, manufacturers of men's and women's fine gauge hosiery.


A LIGHTING POWER
For DARK Mills
Chaffee's Mill White applied to the walls or ceilings of a dark mill will multiply the light from your windows, gas or electricity and will reflect it into even the dark, shady sections and corners.
You can improve the sanitary conditions of the mill and increase the efficiency of your employes with
Chaffee's Mill White
"The Paint With a Purpose"
Chaffee's Mill White has an intense body and easy working quality, making it economical to apply. It neither flakes nor cracks—even when applied where there is excessive vibration and sag.
It is easily washed. It does not turn yellow as lead and oil.
If you want proof of quality and sample panel write "Dept. Y" — or just pin this advertisement to your letterhead and send to us today.
THOMAS K. CHAFFEE CO.
PROVIDENCE, R. I.

Proved by the Guinea Pigs

There was no question about the passage of Chicago's stringent ordinance against the common drinking cup after the municipal laboratories made exhaustive tests inoculating guinea pigs with scrapings from these cups. Their death following such inoculation proved the presence of pneumonia, diphtheria and a number of pus diseases.

We will show in the next issue a combination fountain cooler which may be used with or without ice, making it an all season fountain. This is shown in catalogue we are prepared to send you for the asking.

Rundle Spence Manufacturing Co.
Milwaukee, Wis.

Leonard Weldon was an **inventor.**

Born in Nottingham, England, he came to the United States in 1882.

His first Dyeing Machine was patented in 1886. He died in 1901.

Between 1886 and 1901, 17 U. S. patents were granted to him for improvements in Dyeing Machines.

All of these patents have expired with the exception of 2.

The numbers and dates of the two unexpired patents are:

645698, March 20, 1900
659906, October 16, 1900

A search of the United States Patent Office records on March 9, 1914, showed that neither of the above patents had ever been transferred to any one by Leonard Weldon or his heirs and were at that time the property of the Leonard Weldon estate.

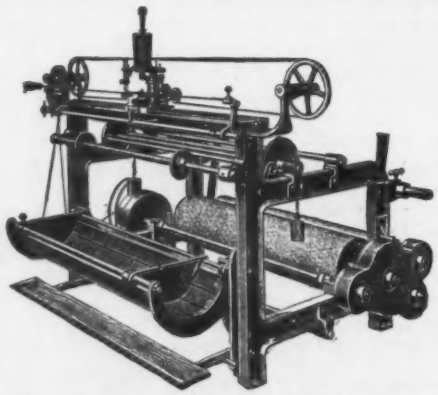
March 9th, 1914, Katherine Weldon and Samuel H. Telford, executrix and executor of the last will and testament of Leonard Weldon, deceased, assigned to John H. Giles, the president of the John H. Giles Dyeing Machine Co. of Amsterdam, N. Y., and Taunton, Mass., Patent No. 645698, of March 20, 1900.

By this purchase we become the sole and exclusive builders of machines under the oldest unexpired Leonard Weldon patent

John H. Giles Dyeing Machine Co.

Taunton, Mass. Amsterdam, N. Y.

Can Handle 600 Cuts a Day



No. 4 Opening and Winding Railway Sewing Machine.

(Equipped with Dinsmore Head.)

Although this machine occupies but 5 feet of floor space, it easily handles from 500 to 600 cuts or pieces of cloth a day.

It takes cloth from the loom, unwinds, sews and rewinds it into rolls of any size up to 3000 yards.

The cloth is kept clean and free from wrinkles. The rolls are made hard and straight, ready for the shears, brushing machines or for shipment.

This machine can be had equipped with either the Dinsmore or the Singer type of sewing head.

When desired, we also furnish measuring attachment and inspecting board.

This sewer is now used in nearly all the leading cotton mills in the country. No other machine manufactured comes so near to putting the cloth in perfect condition.

Write for details of this and other sewing machines.

Dinsmore Manufacturing Co.
SALEM, MASS., U. S. A.

KNITTING MILL NEWS

*North Carolina, Kernersville. Consideration is being given to plans for the previously reported changes and improvements by the American Hosiery Mills Company, manufacturers of seamless hosiery.

North Carolina, Statesville. Additional knitting machines have just been installed in the Walton Hosiery Mills. The plant now contains 40 knitting machines, 14 ribbers, 7 loopers and 1 sewing machine. Seamless half hose is manufactured and sold in the grey. John Walton, Sr., and John Walton, Jr., are the proprietors. Mr. Walton, Jr. is the buyer.

Ohio, Cleveland. Another floor of the building at 1538 E. 49th St., where the plant of the Keller Knitting Company is located, has been leased by the knitting concern and eight new machines will be installed. Knitted coats are manufactured.

Pennsylvania, Lebanon. A large increase is being made in the equipment of the Standard Knitting Mills Company, manufacturers of women's ribbed underwear. The local plant is known as No. 2 mill. No. 1 mill is in Brooklyn, N. Y.

Pennsylvania, Philadelphia. Application has been made for a charter for the Federal Knitting Co., Inc. Samuel S. Pridmore, George H. Schofield and Herbert A. Payne are the incorporators. The Federal Knitting Co., Inc., is located at 10th and Diamond Sts., where lines of high grade silk knitted neckwear are manufactured. They are also installing a number of new full fashioned frames and other equipment on which they will manufacture silk full fashioned half hose, and silk sweater coats for women. The product is sold direct to the retail trade through their own selling force.

Pennsylvania, Philadelphia. The C. W. Payne Hosiery Co., who equipped a plant at 2nd and Norris Sts. for the manufacture of seamless hosiery, have removed to larger quarters at Hancock and Somerset Sts., where additional machines have been installed and production enlarged.

Pennsylvania, Reading. The Reading Underwear Company is operating overtime and considerable new machinery has recently been installed to meet the increasing trade. Among the new equipment is an automatic press, six new knitting machines and eleven sewing machines. Women's and children's cotton ribbed underwear is manufactured.

Wisconsin, Beaver Dam. It is reported the Paramount Knitting Company will increase the local plant. The main office is in the Hunter Bldg., Chicago.

*Wisconsin, Sheboygan. Work has been completed on the foundation for the new 2-story and basement warehouse and office building for the Hand Knit Hosiery Company.

New Jersey, Bridgeton. The new 3-story mill built for E. Sutro & Sons Company, hosiery manufacturers of Philadelphia, is completed. This branch will be operated under the name of the South Jersey Hosiery Company.

Electric, Steam or Belt Driven

Schaum & Uhlinger Extractors are built for either steam, belt or electric drive, in a variety of sizes to meet many requirements.

The picture shows a direct connected, compact motor driven extractor, supplied for any commercial, alternating or direct current, and operating in just enough floor space to set the tub.

Our centrifugals are easily and quickly started, attain full speed rapidly and are promptly brought to a full stop by a powerful toggle brake.

Schaum & Uhlinger Centrifugals

are self-balancing — they take care automatically of all vibration and require the minimum foundation.

Baskets are made with copper or galvanized steel drums, perforated or unperforated, tinned smooth or coated with lead or rubber when required.

Thousands of S. & U. Extractors are in use by over 1350 concerns. One concern alone operates over 40.

Schaum & Uhlinger Centrifugals have many interesting features that have earned for them a well deserved reputation in the textile field.

Our book on Centrifugals and Hydro-Extractors will be of great interest to you. Write for it today.

Schaum & Uhlinger, Inc.
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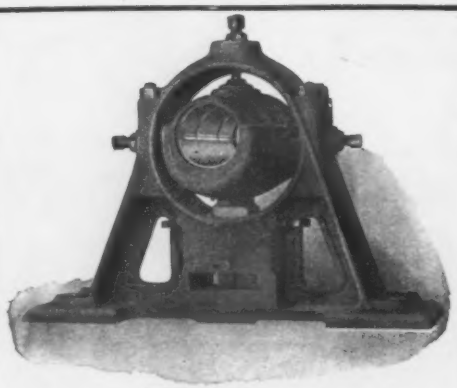

Power Transmission Machinery

Cresson-Morris Company

Successors to Geo. V. Cresson Co.

Engineers—Founders—Machinists

PHILADELPHIA, PA.

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Adjustable Thread Guide

Cheapest to Buy

Cheapest to Install

Easiest to Adjust

Absolute and Rigid Adjustment

Mail Guide Block for Free Sample

Patented and Manufactured by

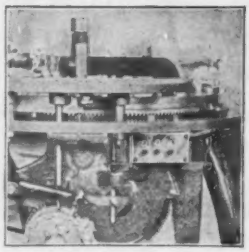
THE I. E. PALMER CO.

MIDDLETOWN, CONNECTICUT

ELM CITY COUNTER

registering the number of sweaters turned out on a

LEICHTON KNITTING MACHINE



The Counter is easily attached and keeps accurate record of the machines output. Our Counters are adaptable to all purposes and are extensively used for counting yards, picks and other units in textile manufacture

They Save Waste, Prevent Errors and Disputes

We have a variety of Counters for textile mill uses.

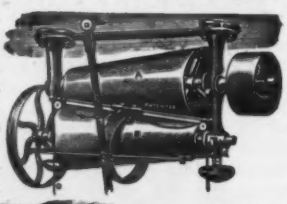
The C. J. ROOT CO. . BRISTOL, CONN.

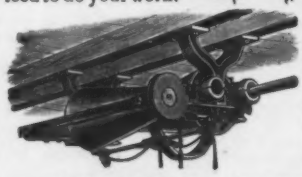
Ask for "Catalog 18."

Variable Speed Countershafts

The Evans Friction Cone Pulleys will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.

They are guaranteed to do your work.





We'll furnish them for either floor or hanging use.

Over Ten Thousand Sets in Operation in this Country and Europe.

Send for Catalogue.

EVANS FRICTION CONE COMPANY

G. Frank Evans. Newton Center, Mass.

Eureka Fire Hose

Cotton Mills, Woolen Mills, Knitting Mills and Factories need positive protection instantly available. Eureka Hose gives protection.

"Eureka" has the lasting quality and the capacity to resist wear and tear.

Fire Hose for every possible duty.

Eureka Fire Hose Mfg. Co.

NEW YORK

KNITTING MILL NEWS

Mills Starting Up.

*New York, Athens. The Athens Textile Co., Inc., recently organized with capital stock of $50,000, takes over the plant and equipment of the former Athens Knitting Company and will manufacture men's ribbed underwear, union suits and sweater coats. The equipment includes 4 sets of wool cards, 40 knitting machines, 60 sewing machines, raw stock and piece dyeing machinery, steam power equipment, etc. Daniel O'Day is president and J. R. McLaren, Hudson, N. Y., is treasurer. Barnes, McGoey & Ely, 349 Broadway, N. Y. City, are the selling agents. The buying is done by Mr. McLaren at Hudson.

New York, Troy. The Troy Knitting Company has resumed manufacturing after an idleness of several weeks and is making flat underwear. It was noted when the mill shut down that changes in the lines manufactured would be made.

Ohio, Bowling Green. The Monarch Underwear Company has been incorporated with capital stock of $60,000 to manufacture knit goods. Fred Uhlman, A. R. Royce, F. E. Riegle and L. D. Mercer are the incorporators. The old Monarch Underwear Company has been through bankruptcy proceedings and the sale of the plant to Mr. Uhlman was recently noted. Manufacturing will be resumed at an early date.

Pennsylvania, Allentown. The plant of the Alpha Knitting Co., 722 Linden St., containing 9 knitters and 18 sewing machines, sold out several months ago by the receiver, has been taken over by Clarence E. Brooks, who will continue it in operation under the old name, selling the production through John M. Cromie & Co., Philadelphia. Children's waists are manufactured.

Tennessee, Chattanooga. The new Madeline Hosiery Mills, a branch of the Davis Hosiery Mills, has begun operations. Work was started on the construction of this mill last October. About 400 hands will be given employment when the plant is operating in full.

MISCELLANEOUS.

.....

*Canada, Ontario, Niagara Falls. A. Fergusson Macintyre and residents of Niagara Falls are organizing a $300,000 company to establish the linen manufacturing plant recently noted. The mill is to be built and equipped with from 100 to 200 looms to manufacture damasks, linen and union towels and toweling and linen specialties. There will be a small dyeing department for dyeing yarn, also a bleaching department. Electric power will be used. An office has been opened at 24 Empire Building and attention is being given to plans for the proposed mill which will be located on Fourth Ave. A. Fergusson Mcintyre, who is in charge and will be general manager when the company is organized, was connected with the Niagara Falls Linen Co. of Niagara Falls, N. Y., established about two years ago.

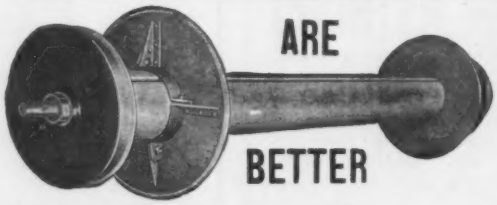
Use
ANTIMOT
Trade Mark Reg. U. S. Pat. Office
Most Effective
Moth Exterminator
For the protection of your woolen and worsted goods in storage
Write for Sample
Berlin Aniline Works
MAIN OFFICE
213-215 Water Street, New York City

TRADE

MARK
[PATENTED]
"Agfa" Soap
For All Textile Purposes
Ask us for descriptive circular and particulars
Berlin Aniline Works
213-215 Water Street
NEW YORK
Boston, Mass., Philadelphia, Pa., Chicago, Ill., Charlotte, N. C., Montreal, Canada

METAL
Bobbins
Spools
Beam
Heads

You can reduce your overhead expense



ARE
BETTER

by using
STAMPED STEEL
Reels—Beams
Bobbins

Write for Catalogue No. 102

FRANK MOSSBERG CO., Attleboro, Mass.

NEW ENGLAND BUTT COMPANY
304 PEARL STREET, PROVIDENCE, R. I.
BRAIDING MACHINERY
ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS
SOLID SASH AND CURTAIN CORDS
SHOE AND CORSET LACES, BANDING
AND ALL BRAIDED FABRICS

THE DOUBLE, BURNISHED OR DIAMOND FINISHED
RIBBED RING WHITINSVILLE
MADE BY THE WHITINSVILLE SPINNING RING CO. MASS.
THE BEST THAT EXPERIENCE CAN PRODUCE, THAT MONEY CAN BUY

Established 1870
John Heathcote & Son
Providence, R. I.
Builders of Improved
Cloth Tentering and Drying Machinery
for WOOLENS, WORSTEDS, FELTS, etc.
Built Upright or Horizontal with Low Down Feed
Ventilating Fans a Specialty
Send for Catalogue

SILK MILL NEWS

Pennsylvania, Pottstown. The two-story and basement silk mill in the lower part of the town, owned and operated by the Champion Silk Co., which was recently destroyed by fire, it is reported will be rebuilt, arrangements at the present time being made for the construction of a new building in which they will install an equipment for the throwing of silk yarns.

Pennsylvania, Ridgeway. It is reported the Holmes Silk Company has purchased ground on which to erect an addition to the Ridgeway plant. Other plants are operated at Williamsport, Pa., and Paterson, N. J.

Pennsylvania, Scranton. The Renard Silk Co., a concern formerly prominent in the silk industry which has leased its plants to other companies for the past five years, is operating its mill at South Washington Ave. & Hickory St. Equipment of the newest design is being added. The Renard Silk Co. has capital stock of $150,000. J. W. Warnke is president; Henry Brown, treasurer, and William H. Kilgour, manager and buyer. The plant at South Washington Ave. and Hickory St. contains 20,000 spindles and is operated by electric power.

Pennsylvania, York. The Diamond Mill of the Pennsylvania Textile Company, which has been used in part for throwing, will be used hereafter exclusively as a silk throwing plant. The equipment will be increased from 22,890 spindles to 42,048 spindles. The looms have been moved from the Diamond Mill to make room for the new spindles. The finishing plant is being moved from the York Mill to the Clifton Mill at Weehawken, N. J., and the space filled up with looms which will give a total of 460 looms in the York Mill. Work on the erection of a group of houses for the company's operatives is expected to be started within the next several weeks.

*Rhode Island, Central Falls. The Bengal Silk Mills, Henry T. Molter, proprietor, have not decided upon details of the projected addition and the exact size or capacity of the enlargement cannot be given at present. Land adjoining the present plant has been purchased and will be used for the enlargement. Construction work will begin in about two months and about four months will be required for the completion of the building. According to rumors the building is to be 2 stories high, of mill construction, brick, with saw-tooth roof and will have space for 350 looms.

*Rhode Island, Central Falls. One hundred looms instead of fifty looms, as stated in the first report, are to be installed in the addition to be built to the plant of the Leader Weaving Company. The enlargement will be completed in two to three months. Benjamin F. Smith Company are doing the construction work. Silk and silk and cotton fabrics are manufactured.

New Jersey, Paterson. It is reported that Robert Gaede has withdrawn from the National Silk Dyeing Company and with his sons will start an independent silk dyeing plant on Fourth Ave., in the old Morton Mill.

GANDY

Stitched Cotton-Duck Belting

Will Not Stretch or Harden

Every Gandy Belt is carefully stretched on our own stretching frames and thoroughly seasoned for months, before it leaves our factory. In consequence Gandy Belts stretch little, if any, in years of service, and the belt edges are always straight and true.

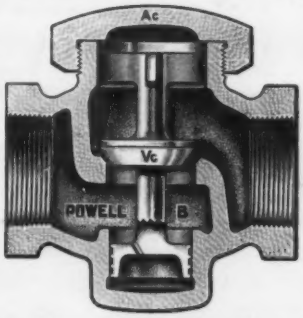
The careful stretching and seasoning—the high quality of material—the imbedded stitch running lengthwise of the belt—the special treatment which makes the belt water, heat and steam proof—these are a few of the reasons for the unqualified success of Gandy Belting for over 35 years. Gandy Stitched Cotton Duck Belting costs about ⅓ as much as leather, much less than rubber. A large stock of seasoned belts always on hand, enables us to fill most orders the same day. Send for a free sample of Gandy Belting and testimonials of satisfied users.

THE GANDY BELTING COMPANY
747 W. Pratt St., Baltimore, Md.
New York Office, 88-90 Reade St.

POWELL VALVES

(Especially The White Star Valve)

AIR TIGHT



NOISELESS

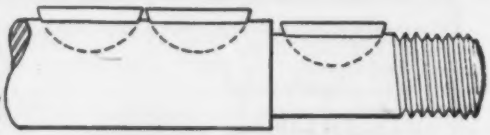
The New Powell White Star Check Valve

1 Body Symmetrically Designed and well-proportioned
2 Dash Pot Disc Ground For Air
3 Note: Thickness of Diaphragm
4 Metal Distributed to Meet The Most Wear
5 All Parts Made to Gauge and Are Interchangeable

Ask your dealer for "Powell Valves" or write us

THE WM. POWELL CO
DEPENDABLE ENGINEERING SPECIALTIES
CINCINNATI

Key Seating Attachment
FOR
Whiton Gear Cutter



We offer an attachment for use with our Gear Cutting Machine, to cut key seats for the Woodruff System of Keying. Write for description, circulars and price.

THE D. E. WHITON MACHINE CO.,
19 Oak Street, New London, Conn.

American Vulcanized Fibre Co.

C. C. Bell, V. P., 12 Pearl St., Boston, Mass.

——MANUFACTURERS——

Laminar Fibre Roving Cans

All sizes, standard and special. Electrically Welded. Tinned Steel or Fibre Rims. Steel or Wood Bottoms. Fibre or Steel Kicking Bands.

Strongest and Smoothest Can on the Market **In Use for 25 Years**

QUINCY A. SHAW, Prest. A. H. WOLCOTT, Manager
A. J. GARCEAU, Treas. ROBT. C. MONTEAGLE, Asst. Mgr. and Engineer

THE LOCKWOOD MANUFACTURING CO.

ESTABLISHED 1860

Engineers and Machinists, Builders of

Dyeing, Bleaching and Finishing Machinery

ENGINE AND MILL MACHINERY REPAIRS

Office and Works: 61 to 85 Sumner Street East Boston, Mass.

FOSTER SUPERHEATERS

Installed in any type of boiler without change in setting. Uniform superheat guaranteed.

Power Specialty Company,

BOSTON: 50 Congress Street **NEW YORK: 111 Broadway.**

Arlington Machine Works

TEXTILE FINISHING MACHINERY

ARTHUR BIRCH, Proprietor

Arlington Heights (near Boston), Mass.

MILL NEWS.

Canada, Quebec, Montreal. Holdsworth & Company, dyers and finishers of woolen, worsted and union goods with plants at Toronto and Montreal, are purchasing additional machinery, with which they intend to equip their new Montreal plant. They recently acquired part of the Montreal Woolen Mills, known as the Stacey Bldgs. The Montreal plant, now located at 16 Cote St., is to be moved to the new quarters and new machinery added for the dyeing and finishing of woolen and worsted dress goods and yarns. They anticipate having the plant in operation early in May. G. P. Holdsworth is manager. The head office will continue to be at Toronto.

*Massachusetts, Framingham. The capacity of the Seamans & Cobb Thread Mills is to be doubled when the business is moved from Sharon to Framingham the last week in March. Francis S. Cobb is president; Frank M. Seamans, treasurer; and Frederick W. Hoppin, vice-president, manager and buyer. Electric power will be used.

Massachusetts, Lowell. The Northern Waste Company of Lawrence has leased for a long term of years a portion of the Cawley Bldg. in Lowell, and will take possession at once.

Massachusetts, Swansea. Practically all the machinery in the Swansea Dye Works, with the exception of the printing and calendering machines, are now operating by electric power, furnished by the Fall River Electric Light Company. Eventually all the equipment will be operated by electricity and the printing machines will have individual motors.

Missouri, Kansas City. A branch is to be established in Kansas City by the Hooven & Allison Company of Xenia, O. The location will be between Forest and Tracy Aves., and 19th St. and Armour Rd. in the northern Kansas City section, where five acres of land have been secured. Architects are now working on plans for buildings to cost about $100,000, including a main building, 515 feet long and 133 feet wide at one end and 88 feet wide at the other. This building will be one and two stories high. There will also be a separate power house, 32 by 45 feet. Brick and concrete construction will be used. The new plant is to be completed by August.

*New York, Kingston. Construction work is progressing on the plant of the Art Silk Yarn Company, Inc. As noted in previous reports the product will be artificial silk and the initial capacity will be about 500,000 pounds annually. The office of the company is with Frederick Vietor & Achelis, 38 E. 25th St., N. Y.

Pennsylvania, Philadelphia. Joseph Flanagan, well known in the textile trade in the winding branch of the business, has equipped a plant at Mascher St. and Lehigh Ave., with machinery for the winding, twisting, coning and tubing of linen, cotton, woolen, worsted, silk, artificial silk and ramie yarns for the trade under the name of the Kensington Winding & Twisting Co.

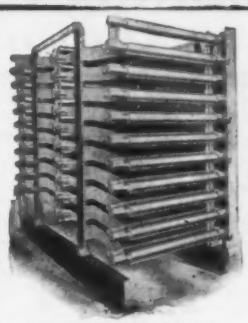
Practical Counting

Practical counting makes it possible for you to accurately determine the exact labor and production costs. Durant Counters are accurately built — long lived. They are especially adaptable for all operations in weaving and knitting.

DURANT COUNTERS

are built for service—they will stand the grind and give you valuable information enough to pay for themselves many times over. We will send you one or more counters on 30 days free trial—they will prove their worth.

W. N. DURANT COMPANY
663 Buffum St., Milwaukee, Wis.
N. E. Agt.: Wm. V. Threlfall Co., Marshall Bldg., Boston



The Cell Drier

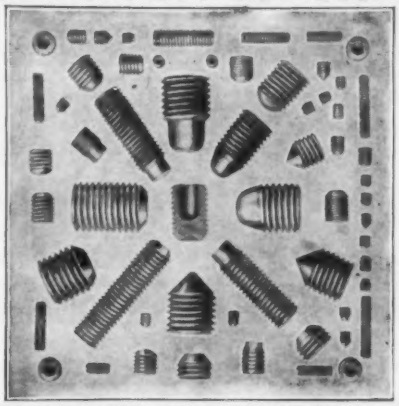
is recognized as the most modern and efficient drier on the market.

It is used by the leading finishers because it opeates at the highest speeds and at low cost. It saves steam, power and space. Let us tell you more about it.

Cell Drier Machine Co.
TAUNTON, - MASS.

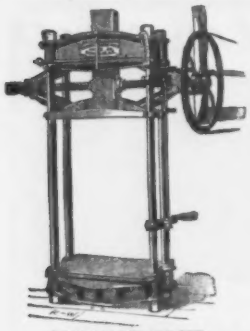
ALLEN SAFETY SET SCREWS

ANY LENGTH, POINT OR THREAD



Send for Circular No. 6, and FREE SAMPLE SCREWS FOR TESTING

THE ALLEN MFG. CO., - HARTFORD, CONN.
135 Sheldon Street



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Boomer & Boschert

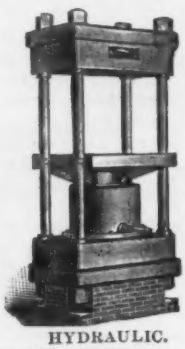
BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size Any Power

Boomer & Boschert Press Co.

338 WEST WATER ST., SYRACUSE, N. Y.



HYDRAULIC.

ASHWORTH BROS.,

MANUFACTURERS OF

Card Clothing of Every Description

FALL RIVER, MASS.

SAVE
Their Cost
In Freight.

THE CHAFFEE PATENT CLOTH BOARD,
Made of paper and wood,
Needs no covers,
Will not split or warp;
Not liable to break.
BOX SHOOKS and CLOTH BOARDS.

MFG. BY
CHAFFEE BROTHERS COMPANY,
OXFORD, MASS.

Clean
LIGHT
Strong

Thread and Silk SPOOLS of any description

Made from one piece, up to 6″ long and 3″ dia.

We are located in the best white birch region. Our work and prices seem to satisfy the most particular customers. We can give any finish desired. Estimates furnished on samples submitted

E. L. Tebbets Spool Company, Locke's Mills, Maine

ANY MILL BRUSH YOU WANT

of good, durable quality, correct shape and finish, at prices based on a business of many sales, at prices that bring repeat orders—can be had of us, for—

WE ARE HEADQUARTERS

S. A. FELTON & SON CO., Manchester, N. H.

Loom Duster

JUST ONE

OF THE MANY MADE FOR YOU

JOHN E. KENDRICK, President MYRON FISH, Treasurer M. C. FISH, Secretary

American Supply Co.

Manufacturers of Reeds, Harness, Belting and General Mill Supplies

We make a specialty of Harness for American Warp Drawing-in Machine

OFFICE and STORE—135-137 Washington St., Providence, R. I. FACTORIES—Central Falls, R. I. and Fall River, Mass,

DIXON PATENT STIRRUP ADJUSTING SADDLE

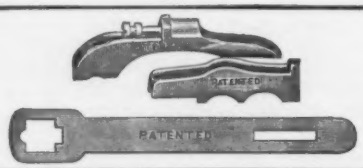
1,200,000 pairs now in use

Best Saddle for Top Rolls of Spinning Frames

Send for Samples

DIXON LUBRICATING SADDLE CO., Bristol, R. I.

Manufacturers of all kinds of Saddles, Stirrups and Levers



MISCELLANEOUS.

Pennsylvania, Philadelphia. Wiseman & Keller have leased the rear building at 4040 Germantown Ave. and installed an equipment for the dyeing of real and artificial silk yarns in the skein.

Pennsylvania, Philadelphia. The Oakdale Dye Works, 913-921 West York St., have recently been purchased from Matthes Bros., by Cuttle Bros., well known as dyers of fabrics and yarns in the textile trade. The new owners, in addition to improving the plant in all its departments by the installation of new machinery for the dyeing of fancy colors on cotton, woolen, worsted and merino skein yarns, are arranging for the installation of machinery on which they propose dyeing all classes of knitted piece goods such as Jersey cloth, stockinet, eiderdown, etc.

Pennsylvania, Philadelphia. W. E. S. Dyer, Land Title Bldg., is preparing plans and specifications for a five-story factory building to be erected at Second and Clearfield Sts. for Joseph R. Foster & Sons, dyers and finishers of yarns and woolen and worsted fabrics and dyers of raw stock. Mr. Dyer expects to be ready for bids on the operation within two weeks.

Pennsylvania, Philadelphia. The Crescent Textile Supply Co., now located at 2060 E. Fletcher St., are arranging for the erection of a new building at Trenton and Susquehanna Aves., for which they have already had plans prepared. The new building will be three stories and basement, of brick, 50 by 40 feet, and will be operated by electric power. A large number of new braiders will be installed in addition to machinery for the manufacture of card wires and other equipment for the manufacture of cards and lacings for Jacquard card cutters and general supplies for the Jacquard card cutting trade.

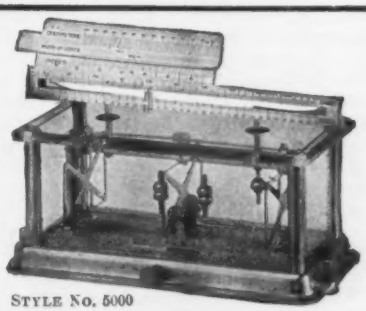
*Pennsylvania, Philadelphia. Confirming a recent report made by us the Hulton Dyeing & Finishing Works, Jasper St., below Somerset, have let to a local builder a contract for the erection of a 2-story addition to their plant, 102 by 145 feet, which will cost in the neighborhood of $18,000, the operation to be started at once.

Pennsylvania, Pittsburgh. The J. R. Bunting Bedding Company, 16th and Wharton Sts., Philadelphia, have leased a factory building in Pittsburgh which will be equipped as a branch plant. Felt hair mattresses are manufactured.

Pennsylvania, Williamsport. According to report the capacity of the National Silk Dyeing Company of Williamsport is to be increased one-third by the erection of a large addition during the spring.

Rhode Island, Saylesville. Plans are being made for a new storehouse for grey goods by the Sayles' Bleacheries, and the building will probably be erected during the summer.

*Wisconsin, Beloit. Repairs are to be made at once by the United States Linen Co., whose plant was recently damaged by fire. This concern manufactures linen goods from native grown fiber and has an equipment of 2 cards, 1,000 spindles and 50 looms.



STYLE No. 5000

TORSION BALANCE COMPUTING TEXTILE SCALES

Style No. 5000 gives the weight per running or square yard of any width, in ounces and fractions of an ounce.

THE TORSION BALANCE COMPANY

Manufacturers of "Special Scales for Special Purposes"

Write for Folder

Office: 92 Reade St., New York

Factory and Works: 147-9 Eighth St. Jersey City, N. J.

Pacific Coast Branch: 50-52 California St., San Francisco, Cal.

QUINCY A. SHAW, Pres. A. J. GARCEAU, Treas.
A. H. FOLGER, Mgr. R. C. MONTEAGLE, Ass't Mgr. & Engineer

THE LOCKWOOD MANFG. CO

Established 1880

IRON WORKS EAST BOSTON, MASS.

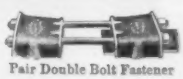
The R. C. Monteagle Patent Piston and Piston Valve Packing

for Reciprocating Engines of **any make**—Marine, Stationary, Steam, Gas, Water, or Ammonia, Vertical or Horizontal. Will reduce Fuel Bill to a Minimum.

BOTTLE TIGHT
PRACTICALLY NO FRICTION
PRACTICALLY NO WEAR
LESS FUEL LESS LABOR
INCREASED EFFICIENCY

Equip Your Tanks

Casks, Vats, and other Wooden Round Receptacles, with



Pair Double Bolt Fastener

"TECKTONIUS" Draw-Band Fasteners

You'll then never be troubled with their leaking, bulging or bursting—with resulting annoyance and loss.

The Adjustable "Clamping" Device

that is put on, adjusted and removed, without expert labor. Made of best malleable iron; cannot break, wear out, pull off, or get loose. For 25 years it has set the standard of kiln band excellence. It has imitators—of course—but there is none as good, as lasting, as the genuine "TECKTONIUS." Write for booklet and prices.

Side Pull Fastener

Pair Single Bolt Fastener

Straight Pull Round Fastener

E. C. Tecktonius Mfg. Co. 1219 Thirteenth Street RACINE, WIS.

MILL NEWS.

*Rhode Island, Pawtucket. Construction work has been started on buildings for the new La Tulia Lace Company, recently reported incorporated with capital stock of $200,000. There will be two large buildings, one story high, 230 by 54 feet, connected by an office building. The buildings will be of cement construction. Twenty lace machines will be installed on the completion of the buildings. Emil Davrou will be manager. Louis Lescault, formerly connected with the Seekonk Lace Company, heads this new concern. A specialty will be made of high-class laces and embroidered curtains.

*Rhode Island, Pawtucket. Walter E. Keach, receiver for the Blackstone Webbing Company, is running out the stock in process.

FACTS AND GOSSIP.

Alabama, Centerville. It is reported that plans are being prepared for a small cotton mill to be built in Centerville.

Canada, Nova Scotia, Amherst. Stock is being run out of the machinery at the Hewson Pure Wool Textiles, Ltd., and the plant will be closed up within a few days. The stockholders' committee recommend a reorganization and the investment of new capital for the consideration of stockholders.

PICKER STICKS, SWEEP STICKS AND PICKER ARMS

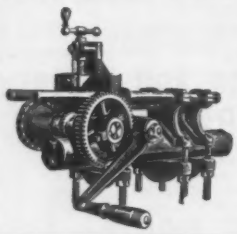
No. 1. HICKORY.

We have been supplying many of the largest Textile Manufacturing Plants with Second Growth **HICKORY PICKER STICKS** for twenty-five years. We are in a position to make you right prices, and to furnish you with just such quantities as you desire. Our Picker Sticks are made of the best hickory possible to obtain, and are thoroughly guaranteed. Sticks are made and fitted exactly as per sketch or sample, which should always be sent with first order.

CHARLES BOND COMP'Y
520 Arch Street, Phila.

YOUR REPAIR SHOP
is not complete unless equipped with one of these

BURR KEYSEATERS



They cut perfect keyseats in shafting anywhere. Save time, delays and money. No. 1 keyseats shafts to 5 in. diameter. Price with full set of cutters, $40.00 net. No. 2 takes shafts to 8 ins. Price, with cutters, $75.00 net.

Interesting booklet free.

John T. Burr & Son
440 Kent Avenue
BROOKLYN, : N. Y.

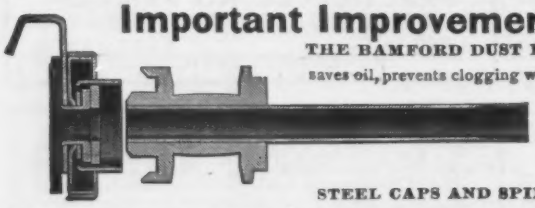
You Save Enough Insurance to Pay for the Equipment

So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.

Pettes & Randall Co., 150 Nassau St., New York

The Chicago Portable Watchman's Clock
Approved by the National Board of Fire Underwriters and accepted by all Insurance Companies
The Perfection of Watchman's Detector Service
Simple, Efficient, Tamper-proof, Durable
WATCHMAN'S CLOCK AND SUPPLY CO.
9 CHURCH STREET, NEW YORK

Important Improvement in Worsted Spinning.



THE BAMFORD DUST PROOF and SELF-LUBRICATING SPINDLE TUBE
saves oil, prevents clogging with dust and lint, thereby insuring longer life to the tubes, saves labor, maintains uniform speed, and most important of all, makes PERFECT YARN. Refer to largest worsted mills.

BAMFORD & SMITH, Providence, R. I.
ALSO MFRS. OF
STEEL CAPS AND SPINDLES. Caps, Flyers, Tubes, etc., Repaired.

You can increase the efficiency

of every belt driven machine you operate—5 to 35%—by coating the pulleys with WARREN'S LIQUID PULLEY COVER. This has been proven by use in thousands of plants for 15 years. You should use it too. Write for particulars today.

The Warren Co., Mfrs.
708 Chicago Road, Niles, Mich.
Removed from Chicago

"Marathon"
Oak Tanned Belting
Worsted Aprons

R. H. HOOD COMPANY
1842 Germantown Ave., Philadelphia, Pa.

FACTS AND GOSSIP.

Canada, Ontario, Guelph. It is reported that a company is being organized in Toronto to take over and operate the plant of the Dominion Linen Mfg. Company, Ltd., recently liquidated.

Connecticut, Jewett City. A section of the roof of the Jewett City Novelty Company was blown off in a recent storm, resulting in a loss of about $2,000. The Aspinook Company was compelled to shut down on account of high water.

*Connecticut, North Windham. Col. W. H. Hall of E. H. Hall & Son, whose plant was destroyed by fire a few weeks ago, states that no definite plan has been made to rebuild the plant or to make other arrangements. Cotton yarns were manufactured on 2,000 ring spinning spindles, 1,500 mule spinning spindles, and 1,200 twister spindles.

Connecticut, Shelton. E. & H. Levy deny the report that the Specialty Weaving Company will be discontinued and the machinery removed from Shelton to other mills of the concern. It is reported locally that Sidney Blumenthal & Co., Inc., have purchased the Specialty Weaving Company's mill and that the Specialty Weaving Company will remove.

Delaware, Wilmington. The Chester Silk Co., Inc., with a capital of $250,000, has recently been granted a charter. Where the company will commence its operations or what will be manufactured is not stated. Oscar J. Reichard, is representative in this city.

*Georgia, Cedartown. In connection with the establishment of a cotton yarn plant in the buildings formerly occupied by the Cedartown Knitting Company it is proposed to add a second story on the Josephine Mill, which will provide room for about 17,000 spindles. C. W. Bateson, of Brooklyn, N. Y., was here recently in the interest of the project and stated that the cotton yarn plant will be equipped if $25,000 is subscribed locally. 24s to 40s cotton yarns will be made.

Kentucky, Covington. A charter has been granted the R. T. Pearce Company with capital stock of $5,000 to manufacture cotton and woolen goods. The incorporators are Richard T. and William N. Pearce and others.

Maine, Augusta. The Bleachers' Corporation of America has been granted a charter with capital stock of $1,200,000. The incorporators are Ernest L. McLean, Joseph Williamson of Augusta, Me.; S. L. Fogg, R. A. Kitridge, Hallowell, Me., and E. M. Leavitt, Winthrop, Me.

SUBJECT: Rats and Mice 72 Front Street, New York, April 1, 1914.

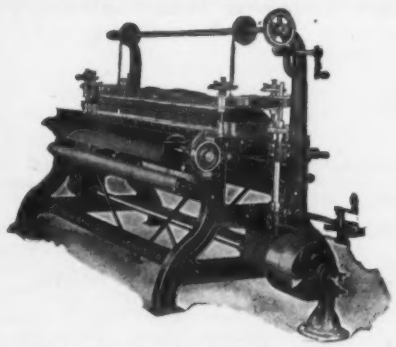
To Mill Owners and Superintendents Everywhere:

DEAR SIRS:

Inquiries and correspondence from textile mill men show that much interest is being aroused in the use of DANYSZ VIRUS for the extermination of rats and mice in Textile Mills. DANYSZ VIRUS has been proven to be the most satisfactory method for getting rid of rodents. In writing to us you will save time if you will tell us the size of the building or buildings which you wish to clear of rats and mice, we can then advise you how much to use and give you some idea of the cost. You will be interested in knowing that the "rat damage" by fire alone in the United States last year amounted to fifteen million dollars. Now is the time to clean the rats and mice out of your buildings. We will be pleased to hear from you regarding this.

(Signed) DANYSZ VIRUS LIMITED, Dept. 4,
72 Front Street, New York.

CURTIS & MARBLE MCH. CO. WORCESTER MASS.



Latest Improved Chinchilla Machine

"CORONATION"

BIRCH TREE.

Piece-End Sewing Machine

sent on trial most anywhere

Sews any Fabric Thick or Thin, Wet or Dry Without Change. Fine Stitch or Coarse Stitch.

Send for circular

BIRCH BROS.
Somerville, · Mass.
Also
Finishing Machinery

Just Issued

TEXTILE DIRECTORY 1914

Less Than Half the Reports in Textile Directories published in 1913 are now correct. About 58 per cent of the Reports in these so-called 1913-14 Directories are now Out-of-Date and Misleading

The Official American Textile Directory

(The Green Book)

Compiled by the Textile World Record shows

3600 mills making important changes
187 mills out of business
312 new mills

Published four months earlier than usual and at a date when the latest information can be made greater use of

420 pages in which all the Textile Mills in the United States and Canada are fully and accurately reported.
23 pages of indexed textile maps showing cities and towns where there are mills. (A complete textile Atlas.)
90 pages of classified mills showing products or class of dyeing, bleaching, finishing, etc. done on order.
42 pages Yarn Spinners classified.
40 pages of Raw Material Dealers and Brokers.
42 pages of lists of Textile Machinery Builders and Dealers in Mill Supplies.
35 pages of Manufacturers Selling Agents and Commission Houses including separate list of Yarn Dealers and Brokers.

THREE EDITIONS

Standard Edition (complete)..... $2.00
Office Edition, larger size..... 3.00

Vest Pocket Editions (mill reports only) published in three sections as follows:
New England States and Canada.....$1.00 Middle States.....$1.00
Southern and Western States $1.00

Order now and make use at once of the thousands of changes in the past year

Lord & Nagle Co., Publishers, 144 Congress St., Boston, Mass.

FACTS AND GOSSIP.

*Indiana, New Albany. About six months ago J. E. Wiley, Jr., came to New Albany and started a rug factory in the plant of the old woolen mills on Vincennes St. The project has been successful and the Mill City Cotton Mills of Indiana, recently reported incorporated with capital stock of $50,000, was organized to take over this business. Rugs and other products in wool and cotton are manufactured at present.

Maryland, Annapolis. A bill has been introduced into the State Legislature to encourage the development of manufacturing industries in the State by providing for exemption from taxation of all tools, machinery and manufacturing equipment.

Maryland, Laurel. A concern known as the British American Mfg. Co. is occupying a part of the Laurel Mill and carrying on a business of waterproofing, fireproofing and rotproofing goods in addition to dyeing, bleaching and finishing. Six hands are employed at present. E. A. Brinckerhoff, New York City, is president, and Dr. L. C. Himebaugh is treasurer and manager.

Massachusetts, Blackinton. Owing to the large amount of business on hand the Blackinton Company will run a portion of the weaving department night and day for an indefinite period.

Massachusetts, Boston. At the annual meeting of the stockholders of the Maverick Mills the old officers and directors were reelected. The president, Eugene N. Foss, stated that the mill is running full time and operating to full capacity. About $30,000 was spent for new machinery during the past year.

Massachusetts, Collinsville. The strike of weavers at the Beaver Brook Mills of the American Woolen Company has been settled and the weavers have returned to work.

New Jersey, Paterson. Salzberg & Goldberg have added ten looms on account of the large increase in the demand for their production.

New Jersey, Paterson. The Hospec Silk Company has been incorporated with capital stock of $30,000 to manufacture silk and other textile fabrics. The incorporators are E. Coche, H. J. Westerhoff, and F. W. Freeman, of Paterson.

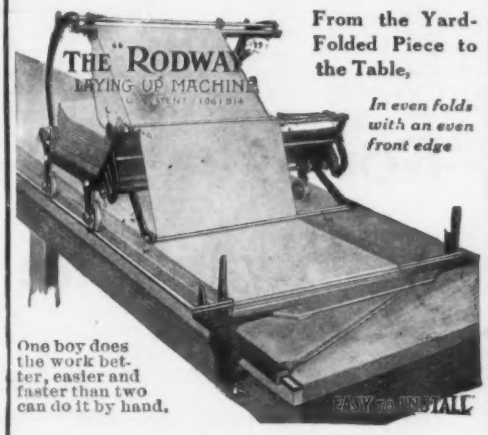
*New York, Albany. F. C. Huyck & Sons deny the report that plans are in preparation for a large addition.

New York, Goshen. The Herter Looms, Inc., have been granted a charter with capital stock of $500,000. The incorporators are Albert Herter, A. D. Bramhall and A. F. Barry, 841 Madison Ave., New York.

New York, Hornell. The Gardner & Highet Company, recently reported incorporated with capital stock of $200,000, succeeded the Gardner & Highet Company, 69 Mercer St., New York., selling agents of braids and narrow fabrics. It is not intended to establish a weaving plant.

*New York, Watertown. J. Stabinsky & Sons, proprietors of the Watertown Paper Stock Company, are making some progress on their shoddy and woolen blanket mill project, and it is reported that the company will soon be incorporated with capital stock of $50,000, by Max Stabinsky, Jacob Baker and Jacob Stabinsky.

To Fold to Any Length



From the Yard-Folded Piece to the Table,

In even folds with an even front edge

One boy does the work better, easier and faster than two can do it by hand.

The RODWAY Type . . . $150.
The SHUTTLE Automatic . 400.

Write for circulars and users' references

The Shuttle Machine Company
18 East 17th Street, New York

HAROLD R. SHIRLEY
242 Chestnut St., Philadelphia, Pa.
French Spun Worsted and Merino Yarns
Bradford Spun Yarns
Woolen Yarns
FOR WEAVING AND KNITTING

The Metallic Drawing Roll Co.
INDIAN ORCHARD, MASS.
MANUFACTURERS OF
Metallic Rolls

Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

WRITE FOR PARTICULARS

Both Effective and Harmless For Washing Woolen Yarns

Wyandotte Textile Soda

Thoroughly removes all grease and other matter, but does it without the least injury to the tensile strength of the fiber. The thoroughness with which it cleans, insures a wool that takes the dye evenly with no streaks or discoloration. It also imparts that soft, lofty feel and appearance so much desired. Its action on Worsted Yarn is equally desirable, bringing it out clear, snowy-white, not dingy or gray-white.

For Washing Woolen and Worsted Cloths

Its superior action is easily apparent in the bright, clear colors. Then, too, the fact that Wyandotte Textile Soda will not strip the colors is of great value where you are using resist dyes on Worsted Cloths, bringing their colors out bright and clear.

Both for Washing Hosiery and for dyeing the same with sulphur colors, equally beneficial results are obtained.

Further information always gladly supplied.

Order from your supply house.

The J. B. Ford Co., Sole Mfrs., Wyandotte, Mich.

This Soda has been awarded the highest prize wherever exhibited.

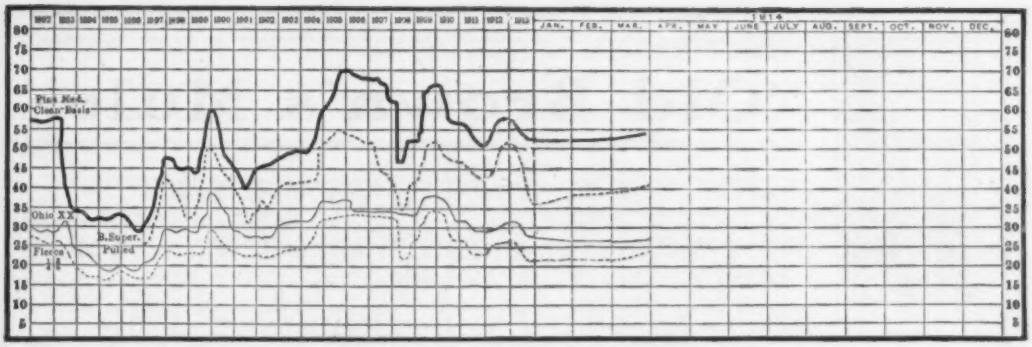

1914
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
Fine Med. Clothing Basis
Ohio XX
B. Super. Pulled
Fleece
80 75 70 65 60 55 50 45 40 35 30 25 20 15 10 5

CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

The markets for wool are strong both here and abroad, and prices have been firm at a fair advance. No one is able to give any satisfactory reason for believing that the top has been reached, while the restricted supply and steadily growing demand work for an even higher level. The goods market is irregular and many mills are short of orders. Manufacturers are unwilling to speculate on the long side of the market, and most of them are buying only for immediate requirements. Buyers are operating freely in the West at prices above last year's level. While the wool market is in a very firm position, there is a general feeling of uneasiness throughout the trade, due to the high prices of the raw material, and the belief that the effect of the reduced duties on goods have not yet been felt, but will begin in earnest in a few months. Time alone will tell whether this feeling is well founded, but it is enough to make spinners and manufacturers keep their stocks of raw material down.

WOOLEN.

New Mills.

*Kentucky, Louisville. George Dunham and his associates, who recently organized the Sterling Spinning Company with capital stock of $25,000, have secured the plant formerly occupied by the Louisville Wheel Company at 15th and Ormsby Sts. and it is reported will begin operations within two months, making woolen yarns for the sweater trade. Electric power is to be used. It is said that between 35 and 40 hands will be given employment at first and that the management expects to increase this number later and ultimately to add a weaving department.

Washington, Spokane. The new Spokane Woolen Mills will begin manufacturing about April 15, and will make Western woolens on 2 sets of cards and 12 looms. B. A. Churchill, formerly superintendent of the Union Woolen Mills at Washougal, Wash., is superintending the setting up of machinery and it is probable that he will be retained in the capacity of superintendent of manufacturing when the mill is ready for operation. The new company has capital stock of $30,000. Sumner Newell is president and George L. Sawyer, treasurer. The mill is located at Parkwater, and is a new structure built especially for woolen manufacturing. It is equipped with electric drive and has a dyeing department for handling raw stock and piece goods. The product will be sold direct.

Massachusetts, Springfield. The capital stock of the Bay State Thread Works is to be increased from $90,000 to $250,000. It is not planned to increase the plant but to increase the direct sales and eliminate the jobbing trade in their selling.

LOGWOOD BLACKS

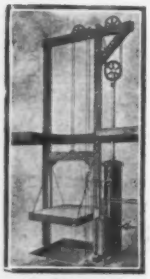
FASTNESS TO FULLING

LOGWOOD BLACKS properly dyed are of superior fastness to fulling.
Shoddy stock and rags can be stripped and mordanted for a Logwood Black in the same bath.
Logwood dyed stock is particularly adapted for interweaving with white wool, cotton and silk in fabrics requiring *severe fulling* and *steaming*.
The appearance and texture of the resulting fabrics are especially pleasing to the trade.

AMERICAN DYEWOOD COMPANY

NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Direct Acting Steam Hydraulic Elevator



Double Geared Steam Hydraulic Elevator

[This is the ad refused by the editor of The Journal of the American Society of Mechanical Engineers because it was not "SUFFICIENTLY DIGNIFIED."]

"Old Brown's Mule"

Is the name of a celebrated chewing tobacco.
"Chew Brown's Mule" is a slogan on the billboards and dead walls all through the South.
But what has "Brown's Mule" got to do with Ridgway Steam Hydraulic Elevators!
Why, bless your heart, we help make "Brown's Mule."
You see, it is this way: The R. J. Reynolds Tobacco Co., Winston-Salem, N. C., is one of the largest tobacco manufacturers in the world. "Brown's Mule" is one of their brands.
The R. J. Reynolds Co. have had us change their elevators to the Steam Hydraulic.
And there we are every day, without a hitch, busy making "Brown's Mule."
Dear me, why, we help make nearly all the good things in the land.

Prints at Arnold Print Works.
Mohair at Jos. Benn Son.
Ivory Soap at Proctor and Gamble's, Cincinnati.
Automobiles at Packard and Cadillac plants, Detroit.
Typewriters at Remington and Elliott-Fisher Co.
Bon Ami Soap at Orford Soap Co., Manchester, Conn.
Powder at DuPont's, Wilmington, Del.
Pianos at Steinway's and Mehlin's.
Sugar at Federal Sugar Co.
Gasoline, etc., at Standard Oil Co.
Money at Washington and Pekin.
Paper at Crane's at Dalton.
Stoves at Sears, Roebuck Co.'s.
Stockings at Onyx Hosiery Mills, Dover, New Jersey.
Steel at United States Steel Co.
Collars at Cluett, Peabody & Co.
Locks at Yale & Towne Co.
Ice Cream at Crane's in Philadelphia.
Pickles at Heinz', in Pittsburgh.
Cans at Continental Can Co. plants.
Gins at Continental Gin Co. plants.
Leather at Wm. Amer & Co., Philadelphia.

Yes, William Henry, we are helping to make the good things all over the land, and could fill this paper with big concerns who have had us

"Hook 'er to the Biler"

CRAIG RIDGWAY & SON CO.

Coatesville, Pa.

Elevator Makers to Folks Who Know

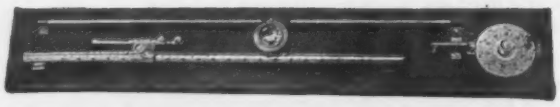
ALFRED SUTER TEXTILE ENGINEER

200 Fifth Avenue - New York

Importer of all the latest types of

Testing Instruments
Conditioning Ovens
Yarn Numbering Scales
Yarn Reels
Universal Cloth and Yarn Analyzing Set
Microscopes
Pick Counters

A FULL LINE OF TESTING APPARATUS TOGETHER WITH A NEW REED BRUSHING MACHINE WILL BE SHOWN AT THE BOSTON TEXTILE EXHIBITION



20" Twist Tester, with take-up registering device and magnifying glass for spinning twist

Combers Percentage Scale

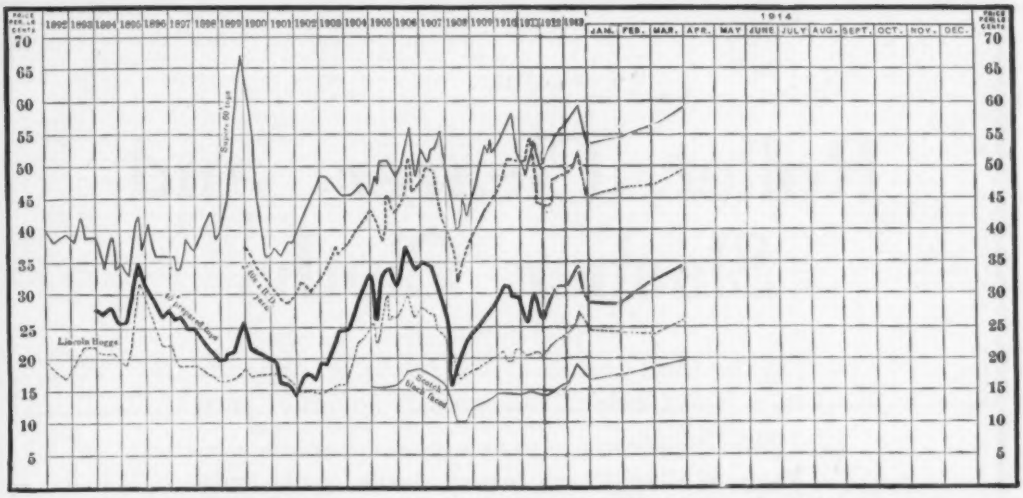


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

THE BRADFORD MARKET

The rise recorded in the quotations during this month is not a sign of prosperity, although the volume of work has evidently increased. Bradford blundered in not supporting the wool market in the latter part of last year and is repairing its error by paying higher prices now than would probably have been necessary had it not been caught short. The new level is distrusted by users of tops and yarns, who see nothing in their order books to warrant an advance. The market is also inconveniently high for those who want to buy and sell wool at a profit. Bradford users are ready to withdraw their support at the first sign of a fall.

The pace has been made by other people. The Frenchmen who speculated in merino last fall have overloaded considerable quantities on Bradford at a profit. Crossbreds have been raised in price by the joint influences of a temporarily short supply and of American buying. The hardening of values has had some uses in bringing out new contracts and spinners have more work on hand than for several months past. Stocks of yarn and goods have not been cleared off. Profitable margins are poor and business is broken up into small lots. Accordingly, there are plenty of complaints of the badness of trade. New buying is held back by the uncertainty of the market and the conviction that there is more to gain than lose in following a waiting policy.

—÷—

Enlargements and Improvements.

Canada, Newfoundland, Cochranedale. The Riverside Woolen Mills contemplate making extensions in the spring. Wool blankets, homespuns and knitting yarns are manufactured. This business is the property of the Royal Stores, Ltd., of St. Johns, Newfoundland. A. Macpherson is president, H. Macpherson, treasurer, and Douglas Pickles, manager.

Connecticut, Bridgeport. Contract has been awarded by the Salt's Textile Mfg. Company to Schwarz Bros. Company for the proposed changes in the plant at the corner of Kossuth and Burroughs Sts. It is planned to build a new roof on the structure. An increase of $3 a week has been given warpers.

Connecticut, Killingly. It is reported the Assawaga Company, Inc., manufacturers of wool dress goods, coatings and suitings, will build an enlargement this spring and will install several thousand dollars worth of new machinery.

*Connecticut, Rockville. James J. Regan Mfg. Company deny that they will build the reported new mill at present. According to reports the occupants of a house on the site to be used for the new mill have been asked to vacate and plans have been made for a mill 75 by 100 feet.

Connecticut, Yantic. The Yantic Mill, now known as the Ardmore Mill, is giving employment to 275 hands in the night and day shifts. Much new machinery is being added.

*Massachusetts, Boston. The Middlebrook Wool Combing Company, Border St., East Boston, have about completed the installation of 7 new combs and 6 new cards, making the equipment 2 scouring machines, 17 combs, and 16 cards. They have also just installed an automatic sprinkler system throughout the whole plant. This concern is exceedingly busy at the present time.

*New Jersey, Garfield. The Garfield Worsted Mills, manufacturers of dress goods, contemplate the erection of a small building for storage purposes.

Roller, Clearer and Slasher Cloths

On the kind of mill cloths you use depends to a great extent the quality of the yarn you produce.

Your Roller Cloth must have uniformly even surface and afford just the right cushion. Your Slasher Cloth must be of the right consistency to force the sizing thoroughly into the yarn, and of the right quality to give long service. Your Clearer Cloth must have strong and even nap.

For many years we have made cloths that meet the requirements of the leading cotton mills in America and now for our mutual protection we are putting our trade-mark on each yard. Order our Brand of your Mill Supply House. Specify it to your Roller Coverer. It is your absolute guarantee of quality, service and price.

If your Supply House is out of Stock, we will ship to you direct.

American Felt Company

TRADE MARK

BOSTON, 103 Bedford Street
NEW YORK, 114 E. 13th Street

If you employ a roller coverer outside your mill, specify our cloth, The trade-mark is your protection.

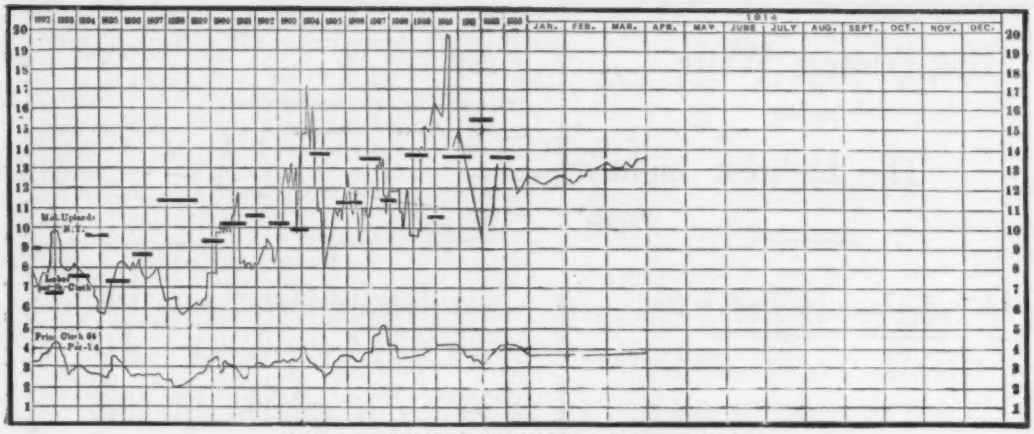


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

The raw cotton market has been under the influence of a number of conflicting conditions, none of which has been sufficient to depress or advance prices materially. Speculators have been closing their deals and thus advancing or depressing prices in accordance with the character of their trades. The cotton goods trade has continued quiet and reports from foreign markets indicate no improvement. Reports from the South have been to the effect that planting is late. Weather conditions have been fair. The agitation for the reform of cotton exchange methods has resulted in the passage of the Smith bill by the Senate. The prospect of drastic legislation of this kind continues to restrict speculative business. The movement into sight from Sept. 1 to March 27 is reported by the "Chronicle" for a series of years as follows:

Year	Bales
1913-14, March 27	12,478,579
1912-13, March 28	11,774,760
1911-12, March 30	13,654,247
1910-11, March 31	10,607,998
1909-10, April 1	9,105,715
1908-09, April 2	11,743,547

The same authority estimate the world's visible supply of cotton on March 27 at 5,861,471 bales, as compared with 5,325,712 bales on the corresponding date in 1913, 5,610,859 bales in 1912 and 4,270,282 bales in 1911.

Leading grades of Egyptian cotton are quoted by Richards, Atkinson & Haserick as follows:

S. E. P.	21½
O. R. D.	21
T. I. Z.	20
A. D. E.	19½
M. A. H.	17¾

COTTON.

New Mills.

*North Carolina, Gastonia. A plot of ground containing 46 acres has been purchased by Colonel C. B. Armstrong for the projected new cotton mill and a plant of about 6,000 spindles for the manufacture of cotton yarns will be built and equipped. Nothing definite has been arranged in regard to the building or equipment as yet. Colonel Armstrong is president of the Armstrong Cotton Mills Co., The Dunn Mfg., Clara Mfg. Co. and is also interested in other cotton manufacturing concerns.

*North Carolina, Marion. In about four weeks plans will be ready for the plant of the new Clinchfield Mfg. Company and building operations will be started as early after that date as possible. Arrangements have been made for carding and spinning equipment and looms but no orders have been placed for other equipment. As noted in previous reports this concern has capital stock of $500,000 and will manufacture print cloths on 25,600 ring spindles and 600 automatic looms, the

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.

"The Whitest White
makes
The Lightest Light"

It Stays White

and it will not crack nor scale. It brushes easily and has wonderful covering capacity, for which reasons

Glidden's
DAY LITE
Mill White

has won and merited such universal approval from owners of factories where light is of great importance. Let the daylight into your plant and let the walls reflect it. Write for full information.

The Glidden Varnish Co.
Cleveland, Ohio

Factories
Cleveland, Ohio Toronto, Canada

Branch Warehouses
New York Chicago London

product being sold through Baldwin & Leslie, N. Y. City. D. D. Little, of Spartanburg, S. C., is president and treasurer, and H. F. Little, superintendent.

Enlargements and Improvements.

Alabama, Alabama City. Construction contract has been awarded by the Dwight Mfg. Company for a 40-foot extension to the boiler room and the construction of the new chimney which will be 187 feet high.

*Georgia, Columbus. The reported increase in the capacity of the Meritas Mills refers to a small addition for storage purposes. At this time no additional machinery is to be installed. The Meritas Mills manufacture cotton cloth for the Standard Oil Cloth Company, 320 Broadway, New York.

Georgia, Dalton. The Crown Cotton Mills are installing 136 automatic looms to replace old equipment.

Georgia, Dublin. The Oconee River Mills will rebuild at once the power plant destroyed by fire earlier in the month. A modern hydro-electric plant will be constructed for which plans are already in preparation.

Georgia, Lafayette. One hundred and sixty new automatic looms are to be installed in the Lafayette Cotton Mills to replace old equipment and contract for this machinery has been awarded.

Georgia, West Point. The cloth room of the Riverdale Cotton Mills is to be enlarged by a $10,000 addition. Plans and specifications for the enlargements are being prepared by Park A. Dallis Company of Atlanta.

Maryland, Baltimore. W. E. Hooper & Sons Company, manufacturers of cotton duck, yarns, ropes, wicking, etc., with 10,000 spindles and 100 looms, are contemplating the installation of a plant for the dyeing of raw stock or yarns, or both.

*Maryland, Elkton. Details of the mill to be built by the Elkton Development Company for W. S. Deibert Company of Elk Mills, have been arranged and work will be started on the construction of the building next week. W. S. Deibert Company will move their machinery here about July 1, and will make a small increase, bringing their equipment up to 30 looms for weaving curtains and couch covers. The name will be changed to the Deibert Mfg. Company, and the business will be incorporated with capital stock of $60,000. W. S. Deibert will be president, manager and buyer, and Elmore Deibert will be treasurer. W. E. Rosenthal will continue to sell the output.

Massachusetts, Fall River. An order for 250 new looms has been placed by the Lincoln Mfg. Company and this new equipment will be installed in No. 2 mill.

*Massachusetts, Holyoke. The addition to be built to the Lyman Mills, to be used as a cloth department, will be three stories high and 135 by 60 feet. The estimated cost is $20,000. This new building will replace the present cloth room building.

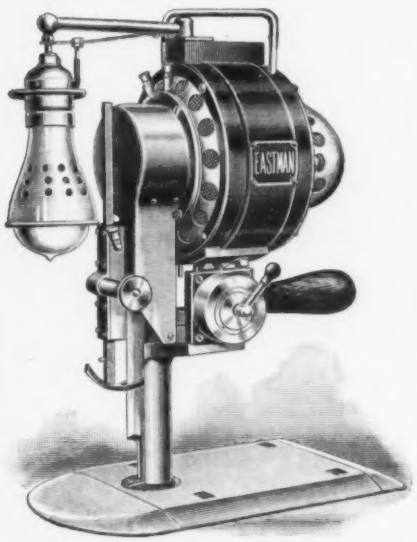
There is LIFE in warps sized with

SIZOL
TRADE-MARK

The compound that makes the yarn feel like spun glass and also keeps it from being brittle. SIZOL gives the cloth a fine smooth finish.

THE SEYDEL MFG. CO.

Forrest Street **Jersey City, N. J.**



Well I Should Say So

That's what he said when they asked him if he was satisfied with his

Eastman Cutter

That's what *you* will say after you have bought yours

Free trial for all styles

Straight Knives, Round Knives, for Direct or Alternating Current

EASTMAN MACHINE COMPANY, BUFFALO, N. Y.

NEW YORK, 816 Broadway
PHILA., 110 N. Sixth St.
CHICAGO, 815 W. Van Buren St.
BALTIMORE, 110 W. Fayette St.
SAN FRANCISCO, CAL., 682 Mission St.
BOSTON, 11 Edinboro St.
DETROIT, 73 State St.

MERCERIZED YARNS

DYERS, BLEACHERS, GASSERS

Dyers of Colors Fast to

SUN AND BLEACHING

Aberfoyle

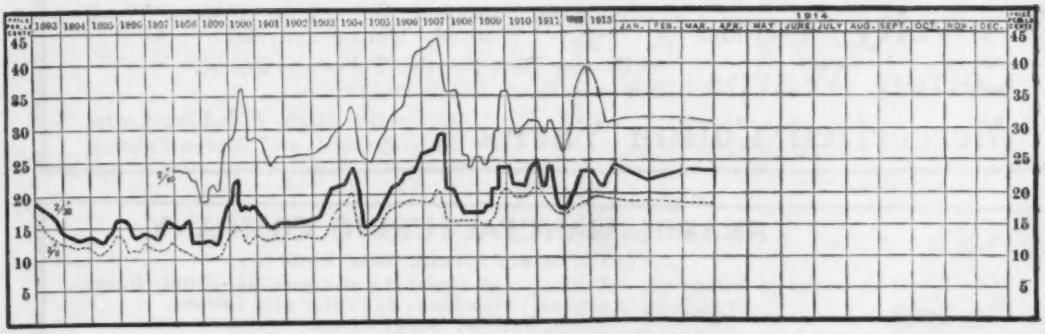
Manufacturing Company

CHESTER, PA.

310 Lafayette Building
Philadelphia

746 Insurance Exchange
Chicago

Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

THE COTTON YARN MARKET

The cotton yarn market for the month just past has been very slow, the condition being due more to poor merchandising than to the lack of requirements on the part of manufacturers or accumulations of yarns by the spinners and merchants. Yarns in Philadelphia have been selling on an average of from one-half to a cent per pound and in many cases more than spinners will consider. Spinners in some instances are beginning to run out of orders, but the high prices charged and which they have had to pay for cotton of good quality has prevented them from accepting contracts at prevailing prices without loss. There is more talk of curtailing production in the South than there has been at any time during the past three years.

Manufacturers as a rule are well employed, with the exception of upholstery and ingrain carpet manufacturers. Manufacturers of some lines of men's wear and dress goods are very busy and the season is reported as opening very promising.

It is apparent that the losses which some of the speculative yarn houses are said to have sustained during the past three months, have been enormous. They booked orders late in the fall at ridiculously low prices expecting to be able to cover with the spinner, and later were forced to pay in some cases two cents per pound over the selling price to obtain the yarns for delivery. This covering at the spinners' price had a tendency to keep the market very strong. These houses having been stung by their short sales were compelled to buy long and are now experiencing further losses by the present decline.

There is a scarcity of yarns made from white cotton, which commands a premium of about two cents per pound over off color stock. Off-color yarns are able for most requirements. Single warps are selling for 21 1/2 cents per pound for 10s, 12s and 14s badly tinted stock at 20 cents; and strictly white stock high grade yarns at 22 cents. Warps are being quoted at 23 cents for 2/20s with reports of sales at 22 1/2 cents, while spinners are holding firm at 23 1/2 cents for this number. Warps are being quoted in the South at 26 1/2 cents for 2/30s, but in Philadelphia they are sold at 26 cents and less. Warps and skeins are being quoted from 29 1/2 to 31 1/2 cents for 2/40s, depending upon the quality and make of the yarn. The best sales during the month have been for 3/8s tubes to the carpet trade. Sales of 100,000 pounds and upwards of this number were made at 17 3/4 to 18 1/4 cents.

Eastern Cops

6s	19¾
8s	19¾
10s	22¼
14s	23¼
16s	23¾
18s	24¼
20s	24¾
22s	25¼
24s	25¾
26s	26¼
30s	27¼
34s	29½
36s	30½
40s	30

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1¼c. from 23s to 35s, and 2c. above that.

THE J. R. MONTGOMERY CO.

Windsor Locks, - Conn.

MANUFACTURERS OF

Novelty Yarns — Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps — on Beams, Jack Spools, Tubes and Cones. In Fancy Twist, Colors and Printed.

Mercerized Cotton Yarns — Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

ARABOL MANUFACTURING COMPANY

100 William Street, New York

Sizing, Stiffening, Softening and Finishing Compounds, Glues, Gums, Dextrines, Starches, China Clay, Bone Size and Grease, Soap, Tallow, Weighteners

EVERYTHING IN SIZINGS, Etc. SAMPLES MATCHED. HIGH GRADE GOODS

MONUMENT MILLS, HOUSATONIC, MASS.

HIGH GRADE COTTON YARNS White, Colors, Bleached

On Beams, Jack-Spools, Cones, Skeins and Chain Warps

FAST-BLACKS & COLORS | For Woolen Mills a Specialty | WE SELL DIRECT

C. MOORE & CO.

Manufacturers of

Twines, Threads and Yarns

Jacquard Harness Twines of all kinds on hand and made to order

S. W. Cor. Fifth and Market Sts., Phila.

JOHN F. STREET & CO.

Cotton Yarns

PROVIDENCE, R. I.

Providence, Chicago, Philadelphia, New York

JAMES E. MITCHELL CO.

COMMISSION MERCHANTS

COTTON YARNS

122-124 Chestnut Street, - - - Philadelphia, Pa.

Brown Building, 185 Summer Street, - Boston, Mass.

Fred Sternberg & Co.

530 BROADWAY, NEW YORK

MERCERIZED GLAZED GASSED | COTTON YARNS

Parker Spool and Bobbin Company

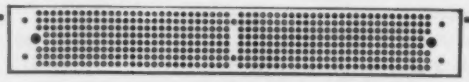
FORMERLY AT LOWELL, MASS.

LEWISTON - - MAINE

PRESS PAPER

HIGHEST GRADE BEST VALUE

Mills RAINBOW, CONN.



JACQUARD CARDS

THE MERWIN PAPER CO

SPECIALTIES

FOR ALL PURPOSES Inquiries Solicited

Address HARTFORD, CONN.

Eastern Two-Ply Skeins, Carded Peeler

12s	23½
14s	24
18s	25
20s	25½
24s	27
26s	28
30s	29
36s	36½
40s	38½
45s	42½
50s	45½
55s	47
60s	52

Eastern Two-Ply Warps, Carded Peeler

2/30s	29½
2/36s	36½
2/40s	38½
2/45s	42½
2/50s	45½
2/60s	53½

THE PHILADELPHIA MARKET

7s and coarser	20½
8s and 9s	20¾
10s	21
12s	21½
14s	22-22½
16s	22½-23
18s	23-23½
20s	23½-24
22s	24-24½
24s	25
26s	25½
30s	27
40s	33
50s	39

Southern high grade mule yarns:—

Cones

10s	22½
12s	23
14s	23½
16s	24-24½
18s	25
20s and 22s	25½-26
24s	26½

Southern frame yarn, lower grades:—

6s and 8s	20
10s	20½

Eastern cones (high grade quality):—

10s	23½
12s	24
14s	24½
16s	25¼
18s	25¾
20s and 22s	26¼-26¾

Skein yarn (mostly Southern):—

4s and 8s soft	20
10s and 12s	20½-21
14s and 20s	21½-23
22s	23½
10/2	20½

P&B RAMIE YARNS
In all numbers for
Knitting, Weaving and Laces
Manufacturers
Erste Deutsche Ramie Gesellschaft
Emmendingen, Germany
Sole Agents
PFALTZ & BAUER, Inc.
Importers
300 PEARL STREET
NEW YORK

THE DEPENDABLE GOLD STAMPS
SKETCHES AND SAMPLES ON REQUEST
MEYERCORD CO. PHILADELPHIA & CHICAGO.

PRINTING EMBOSSING DESIGNING ACME CO.
We Can Save Your $
We specialize on bands, labels, box tops, tickets, stickers, and commercial printing for the Textile Trade and kindred industries.
Acme Print Co., Reading, Pa.

SOAPS HIGH GRADE SOAPS
Bleaching, Fulling and Scouring SOAPS
Red Oil and Olive Oil Crown Soaps
J. O. Draper Co. Est. 1800 Pawtucket, R. I.

Walter W. Hodgson
Card Stamping and Repeating
FOR ALL TEXTILE FABRICS
Also Repeating for Throw Overs for Fine and French Index
315 West Lehigh Avenue • Philadelphia

Wool Year Book
In one volume are given outlines of woolen yarn manufacture, worsted yarn manufacture, on both English and French systems, weaving and finishing. There are numerous useful calculations, tables, recipes, and notes. 400 pages; green flexible leather, Price $1.25.
Catalogue of Textile Books sent free.
Lord & Nagle Co., Textile Publishers
144 Congress Street Boston, Mass.

S. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS
FITCHBURG, MASS.
Capacity, 45,000 Spindles.
HIGH GRADE YARNS
From Egyptian and Peeler Cotton, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

JENCKES SPINNING COMPANY
PAWTUCKET, RHODE ISLAND
COTTON YARNS
CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS.
MERCERIZED YARNS, IN SINGLE OR PLY, A SPECIALTY

Industrial Tape Mills Co.
Jasper and Huntingdon Sts. Phila., Pa.
Manufacturers of
NARROW FABRICS
SPOOL TAPES. STAY BINDINGS AND BRAIDS
Also Sole Manufacturers of
SAXON
New Guaranteed Non-Shrinkable Tape

Reels for Cotton WOOLEN AND WORSTED
Patented Hosiery Winders, Cop Winders and Spoolers
LINDSAY, HYDE & CO.,
2124 to 2130 E. York St., PHILADELPHIA, PA.

F. W. MAURER & SONS CO.
MANUFACTURERS OF
Fringes, Tapes, Bindings & Narrow Fabrics
Office and Factory: WAYNE AVE. and BRISTOL ST.
PHILADELPHIA

Knitting and Weaving YARNS
Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment
EDWARD S. HYDE
226 CHESTNUT STREET
Philadelphia, Pa.

Lowell Crayons Meet the requirements of any cotton, woolen or worsted mill.
May we send samples? 15 colors and white
LOWELL CRAYON CO. Original Manufacturers LOWELL, MASS.
TRADE MARK ON EVERY BOX

The Bradley Stencil Machine
Makes stencils in half a minute, at reduced cost of 1-10 cent each. Write for catalogue and price list.

In universal use by thousands of manufacturers and shippers.
Also manufacturers of Oil Stencil Board. Write for prices and samples.
101 Beekman St. New York, U.S.A.

HUGHES FAWCETT
115 and 117 Franklin St., New York
Linen Weaving and Knitting Yarns
Linen Jacquard Harness Twines
And Linen Yarns and Threads for every purpose
Turkey Red Yarns
LARGE STOCK PROMPT DELIVERIES

LINDSAY THOMPSON & CO., LTD.
FLAX SPINNERS BELFAST, IRELAND
Linen Weaving and Knitting Yarns
LINEN THREADS OF EVERY DESCRIPTION
T. J. PORTER & SONS Large Stocks
Selling Agents, Philadelphia Quick Delivery

The Ramie Agency
Manufacturers' Agents
New York
Ramie Yarns and Threads
HAVE REMOVED
TO NEW AND LARGER QUARTERS AT
432 FOURTH AVE. Corner of 29th St.

16/2	21
20/2	23
30/2	26
40/2	31
8/2	20½
7/6	20½

Southern warps:—

10/1	20½
14/1	21½
16/1	22
20/1	23
22/1	23½
26/1	24½
30/1	26
8/2	21
12/2	21½
14/2	22
16/2	22½
20/2	23½
26/2	25
30/2	26
40/2	32
50/2	38

THE LINEN YARN MARKET

The demand for linen yarns, according to reports from Belfast, has been of a most extraordinary character and prices are being adjusted according to circumstances with a decided tendency towards lower prices. This has been explained by the weavers going on short time and also by the political troubles of which Belfast is the center. Altogether the outlook is far from bright and buyers of yarns can practically state their own terms. Even though it is a buyers' market, they are not disposed to buy any more than for their immediate requirements and at the present time these are very small.

Tow yarns in some numbers have receded considerably in price, while line yarns are neglected.

The outlook in the American markets for linen yarns is somewhat brighter. Manufacturers have been buying very freely, but are waiting developments on the other side so as to take full advantage of any drop in prices that may be offered.

("A" Quality)

35s Lea on cones	83
50s Lea on cones	88
60s Lea on cones	93
80s Lea on cones	98
90s Lea on cones	1.08
100s Lea on cones	1.13
110s Lea on cones	1.28
120s Lea on cones	1.48

Massachusetts, Lawrence. Edwin A. Simpson, a Lowell contractor, has purchased the material in the Pacific Mill print works buildings and will tear down the structure.

DODGE

Pure, Soft Water for the Textile Manufacturer

Cooper, Wells & Co., hosiery manufacturers, St. Joseph, Mich., bought a Dodge Water Softener several years ago. The other day one of our engineers saw Mr. Wells and this is what he said about the machine:

"The Eureka System is giving entire satisfaction. We are using the treated water in the dye house and in our boilers. We are reducing the water from a hardness of 18⅓ de. to between 5 and 6 de. of hardness at a cost of 1¼ cents per thousand gallons and no matter how muddy the river is we always have clear water coming from the softener. We are saving 50% in soap and alkali, both our heaters and boilers are perfectly clean of scale and we are making a saving of 7% in coal."

In our "Eureka" system you can put your water supply on the safe side for only a penny or two per thousand gallons.

The machine works automatically with only a half hour's attention every day, and there is practically little cost attached after installation.

To supply the demand for literature dealing with the water problem a special number of The Dodge Idea has been issued. The text is illustrated and written in such a manner that anyone can understand it. One interesting feature is a double page, five color chart, graphically illustrating and describing the chemical reactions. Ask for D. I. Special.

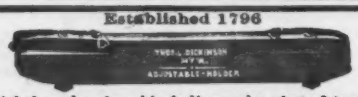
Dodge Manufacturing Company
Water Softening Systems for Textile Mills
Mishawaka, Indiana
Branches and Agencies in All Principal Cities

BOSTON MASS. BRADFORD ENG.
RICHARDS, ATKINSON & HASERICK
IMPORTERS
TEXTILE MACHINERY
MILL SUPPLIES
EGYPTIAN COTTON
PHILADELPHIA OFFICE "THE ARCADE"

A. G. THURSTON & SON
Manufacturers of
Fluted Rolls, Pressers for Flyers
AND GENERAL MACHINERY
Specialties made of Renecking, Refluting, Filing and Honing of all kinds of Rolls. Flyers Repaired and Fitted with any desired Style of Pressers, Spindles Straightened, Restepped and Retopped.
BOX 528, FALL RIVER, MASS.

Tees Dash Pot Governors
For the relief and perfect regulations of the Dash Pots of **Greene & Corliss Engines and Ice Machines.**
Runs Automatically, load on or off.
Reduces Friction and Noise, Lightens the Lifts and makes quick drops. *Send for circulars.* 30 days trial allowed.
MARCELLUS & TEES
527 Fairmount Ave. Est. 1899 Philadelphia, Pa.

OTTO KUNZE
2727 Myrtle Ave., BROOKLYN, N. Y.
Our Specialty: Fibre Covered Shuttles
Of Every Description
Samples sent on application

Established 1796

Special shaped carbon, black diamond, **pointed tools** for turning paper, rag, corn husk and cotton **calender rolls,** hard rubber, fibre, etc. Manufactured by
Thos. L. Dickinson, Successor to John Dickinson, 64 Nassau St. New York City

Established 1844.
BENJ. BUCKLEY'S SON,
(WM. J. BUCKLEY) *Gun Mill, Patterson, N. J.*
Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc., for Cotton, Silk, Flax, Woolen and Worsted **Machinery.**
Roving Spindles and Flyers a Specialty. Light Forgings.
REPAIRING OF ALL KINDS.

Elliot Cloth Folder and Measurer
FOR PRINT WORKS GINGHAM AND COTTON MILLS BLEACHERIES' ETC., ETC'
Send for circular.
Manufactured by
ELLIOTT & HALL, 54½ Hermon St., Worcester, Mass.

COTTON MILL NEWS

*Massachusetts, Fall River. A total of 4,094 new automatic looms are being installed in the Fall River Iron Works, replacing old narrow looms. The work will be completed early in the summer. Most of this new equipment is being installed in No. 7 mill and many of the 28-inch looms that are being replaced are being taken to other mills of the plant and in turn replacing older looms which are being broken up. At the American Printing Company extensive and important changes are being made consisting of the installation of electric power, for the operation of all machinery. The change will be completed by July 1.

*Massachusetts, Holyoke. Plans have not been worked out for the changes that are to be made in the bleaching and dyeing departments of the Merrick Mills of the American Thread Company, and new equipment will not be required probably for several weeks. The purchase of machinery is handled through the Purchasing Department, The Thread Agency, 260 W. Broadway, N. Y. City.

Massachusetts, New Bedford. At the special meeting of the stockholders of the Sharp Mfg. Company it was voted to increase the capitalization by the issuance of $300,000 additional six per cent. preferred stock. It was also voted to extend the time during which the preferred stock of the corporation may be exchanged for common stock from January 1, 1915, to January 1, 1917. It is stated that only $150,000 of the new stock will be issued at present. Plans have been completed for the installation of 10,000 new spindles which will bring the equipment up to 80,000 spindles and eventually this will be increased to 115,000 spindles. Fine combed yarns, 40s to 120s, single and ply, are manufactured.

Massachusetts, Saundersville. Fifteen new spinning frames have been installed in the Saunders Cotton Mills. For several months past the work of improving the plant has been constantly in progress. Recently a new humidifying system was installed.

North Carolina, Burlington. Orders are being placed by the King Cotton Mills Corp. for machinery which will convert the plant into a 10,000-spindle cotton yarn mill. The weaving department is to be discontinued and about 5,000 new spindles to be installed.

North Carolina, Charlotte. Two new boilers are being installed in the plant of the Atherton Mills, replacing five old boilers. The operation of the mill is not disturbed while this change is taking place.

F. C. BARTON
65 Worth Street, New York
MANUFACTURER OF
"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.
F. C. BARTON, President
65 Worth Street, New York
Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.

COTTON MILL NEWS

North Carolina, Charlotte. The Thrift Mfg. Co., a reorganization of the Thayer Mfg. Company, has placed orders for 2,260 additional spindles, bringing the equipment up to 3,476 spindles.

North Carolina, Charlotte. Contract has been awarded by the Chadwick-Hoskins Company for a small addition to be equipped as a lapper room and orders have been placed for 8 new lappers.

North Carolina, Cherryville. A humidifying system is being installed in the plant of the Melville Mfg. Co., manufacturers of cotton yarn.

*North Carolina, Henrietta. Four hundred new automatic looms have been installed in Mill No. 1 of the Henrietta Mills.

North Carolina, Norwood. The management of the Norwood Mfg. Company is considering plans for doubling the capacity of the plant. Cotton hosiery yarns are manufactured on 15,336 ring spindles and 7,608 twisting spindles. D. B. Coltrane is president and treasurer, and J. F. Shinn is general manager.

*North Carolina, Raeford. Work on the dam being built by the Raeford Power & Mfg. Company at Rock Fish Creek, several miles below Raeford, is about completed. They will develop 700 h. p. and as noted previously, will transmit this to the cotton mill at Raeford changing it from steam to electric power. With the power development completed, attention will be given plans for doubling the cotton mill, but no building will be done this year.

*North Carolina, Rockingham. In connection with the enlargements and improvements to be made by the Hannah Pickett Mills, an additional mill building will be constructed. The machinery increase will include 4,500 spindles and 100 40-inch looms, also electric power equipment.

*Rhode Island, River Point. In at least two of the mills of B. B. & R. Knight mule spinning is being replaced with ring spinning and it is said that the change will be carried out in all the Pawtuxet Valley mills of the concern. At the Arctic Mills the change is practically completed and at the Royal Mills some of the looms have been closed down for the past week due to the elimination of the mules.

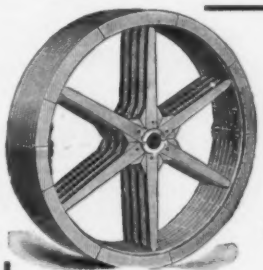
Rhode Island, Warren. No. 3 Mill of the Cutler Mills has been started up following the strengthening of the floors and the addition of several spinning frames. Various other improvements were made during the brief shut down. The braiding department of No. 2 Mill is being operated constantly and the force of this department is being gradually increased.

South Carolina, Clearwater. The Seminole Mfg. Company of this place, and the Aiken Mfg. Company of Bath, will install electric motors to take the place of the present steam power plant. Current will be purchased from the Georgia-Carolina Power Company. These mills are under the same management.

BANDING
CANNOT BE TOO GOOD

Often it is "**Too Bad**"—in more ways than one—as a certain spinner remarked after taking a chance with some clothesline miscalled banding. He has gone back to **Lambeth** for keeps. No more chances for him. Final cost is the real test of economy.

Lambeth Rope Corporation
NEW BEDFORD, MASS.



Gilbert Wood Split Pulleys

SAGINAW Manufacturing Company
Saginaw, Mich., U. S. A.

New York Branch, 88 Warren Street
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Sales Agencies in all the Principal Cities
Cable Address: Engravo A B C and Lieber's Code

DIXON'S BELT DRESSINGS

Send for Booklet No. 120. "The Proper Care of Belts."
Made in JERSEY CITY, N. J. by the
JOSEPH DIXON CRUCIBLE COMPANY

PROVIDENCE MENDING CO.

Burlers, Speckers and Menders of Textile Fabrics

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PHILADELPHIA, PA.

DODGE

Cotton Manufacturer Expresses His Satisfaction with the Dodge Line

John R. White, President

Georgia Manufacturing Company

Cotton Yarns, 24s Single and Plys.

White Hall, Ga., Sept. 15th, 1913.

Dodge Mfg.Co.,
Atlanta, Ga.

Gentlemen:

I have been running cotton mills for over fifty years, and of course, have had a varied experience in that long time, but have never used better hangers, bearings, pulleys and clutches, and few so good as those manufactured by the Dodge Manufacturing Company of Mishawaka and bought through the Atlanta branch.

Yours truly,

Jno R White

President.

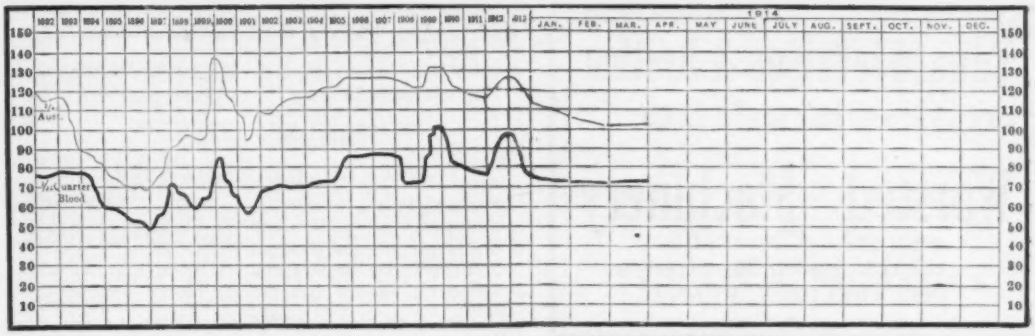
HAW-JRW.

Estimates on Complete Transmission Equipments for Textile Mills Cheerfully Furnished Free of Obligation

Dodge Manufacturing Company

Offices and Works: - MISHAWAKA, INDIANA

PHILADELPHIA	BOSTON	CINCINNATI	ATLANTA	PITTSBURGH
815 Arch St.	139 Purchase St.	128 W. Third St.	28 S. Forsyth St.	337 Second Ave.
CHICAGO	NEW YORK	MINNEAPOLIS	ST. LOUIS	PORTLAND, ORE.
214 So. Clinton St.	21 Murray St.	100 N. Third St.	408 N. Fourth St.	14th and Lovejoy Sts.



GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

WOOLEN AND WORSTED YARN MARKETS

The spinners of both Bradford and French worsted yarns state that conditions have improved somewhat. Prices have advanced from 2 1/2 to 5 cents on all grades, while some of the finer counts have been increased from 7 1/2 to 10 cents. Manufacturers claim that they have not sufficient orders on hand to warrant the placing of additional contracts. They seem to be taking chances on the market, which is still advancing, and are placing orders for yarns at the lowest prices they can secure. There is no doubt that the price of the finer yarns will go higher, but present indications point to the fact that low quarter and three-eighths blood yarns have reached their limit and will probably drop one or two cents per pound. This of course depends entirely on the new clip, as spinners are now contracting for wools on the sheep's back.

The sweater business is very dull at this time and little business is being booked, except for yarns which are being used in the finer garments.

The weaving business seems to be on a hand to mouth basis with small orders for immediate shipment, although some of the weavers are reported as being fairly busy and buying anywhere from 2/24s quarter and three-eighths bloods and 2/40s half bloods with the men's wear manufacturers placing the majority of the business. Some contracts for small lots are also being placed, but these are few and far between.

Manufacturers throughout the country are more inclined to hold off, preferring to buy on a hand to mouth basis, every one playing a conservative game.

BRADFORD SPUN YARN

2/16 Ingrain (black)	54
2/16 Ingrain (light grey)	55
2/16 Ingrain (white)	56
2/12 to 2/16 low common	60-62½
2/20 to 2/24 low 1/4	62½-65
2/20 to 2/25 1/4 blood	67½-70
2/26 to 2/28 1/4 blood	70-72½
2/32 1/4 blood	70
2/20 3/8 blood	70-72½
2/26 3/8 blood	72½-75
2/32 3/8 blood	75-77½
2/36 3/8 blood	80-85
2/40 1/2 blood	90-92½
2/40 delaine	95-1.00
2/50 delaine	1.00-1.02
2/40 Australian	1.00
2/50 Australian	1.10-1.12½
2/60 Australian	1.17½-1.20
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop	67½
1/30 50/50 White Merino Cop	69½
1/40 50/50 White Merino Cop	72½
1/20 60/40 White Merino Cop	71
1/30 60/40 White Merino Cop	73
1/40 60/40 White Merino Cop	76
1/20 70/30 White Merino Cop	74
1/30 70/30 White Merino Cop	76
1/40 70/30 White Merino Cop	79½
1/20 80/20 White Merino Cop	76½
1/30 80/20 White Merino Cop	78½
1/40 80/20 White Merino Cop	80½
Sliver and Sanitary Mixes	3c. more
Coning on 1/20	2c. more
Coning on 1/30	3c. more
Coning on 1/40	4c. more

FRENCH SPUN YARN

1/20 1/4 blood	67½
1/20 high 1/4	70
1/20 3/8	75
1/20 high 3/8	76-78
1/20 1/2 blood	81½
1/30 1/2 blood	85
1/40 1/2 blood	87½
1/50 delaine	1.00-1.02½
1/40 Australian	95-97½
1/50 Australian	1.02-1.05
1/60 Australian	1.10

Edward Jefferson & Brother
SPECIALISTS IN
Worsted Machinery
117-123 South 2d Street
PHILADELPHIA, PENNA.

William Whitman Co.
COMMISSION MERCHANTS
COTTON and WORSTED YARNS
BOSTON NEW YORK PHILA. CHICAGO CHARLOTTE

JAMES LEES & SONS CO.
MINERVA MILLS
Spinners of WORSTED YARNS
For Weaving and Knitting
In the Grey and in all colors and mixtures
Philadelphia Office: 627-29 Bourse Bldg.
Mills and Office: Bridgeport, Montgomery Co., Pa.

J. B. Jamieson
77 Summer St., Boston
Imported Worsted Yarns
For Knit Goods, Men's Wear and Dress Goods

Woolen and Merino
YARNS
Eaton Rapids Woolen Mills
EATON RAPIDS, MICHIGAN

EMPIRE MILL CRAYONS
"BEST BY TEST"
THE AMERICAN CRAYON CO.
Waltham, Mass. and Sandusky, Ohio

1/70 Australian 1.15-1.20
For two ply knitting twist add 5c. additional to above prices.
For two ply weaving yarns add 7 1/2c. additional to above prices.

KNITTING YARNS

Dyed and Bleached—Bradford System

2/7s straight 1/4 blood 75-77½
2 and 3 ply 10s-15s straight 1/4 blood .. 77½-80
2 and 3 ply 16s-20s straight 1/4 blood .. 77½-80
2 and 3 ply 20s-24s straight 1/4 blood 80-82½
2 and 3 ply 24s-28s straight 1/4 blood .. 82½-85

WOOLEN AND MERINO YARNS

Spinners of woolen and merino yarns report being fairly busy working on contracts placed with them some time ago for 2/20 and 2/23 cut yarns and are making deliveries accordingly. Very little new business is being booked at this time and not much is looked for until another month or two has passed. Most of this business comes from the sweater trade which at this time is very dull. The spinner, however, anticipates a good business at a later date. Prices at this writing are very firm with every tendency to advance. Prices on raw material continue to rise and spinners claim that their prices must be rearranged accordingly.

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	52-55
2/20 Light Grey Mixed	90%	10%	57½-60
2/20 Light Grey All Wool			62½
2/20 Colored All Wool			60
2/20 Bleached	80%	20%	62½-65
2/20 Bleached	90%	10%	67½-70
2/20 Bleached All Wool			70-72½
2/23 Colored All Wool			62½-65
2/23 Bleached 90/10			67½-70
2/23 Bleached All Wool			72½-75
2/25 Light Grey Mixed All Wool			80-82½
2/25 Bleached All Wool			85-87½

THE RAG AND SHODDY MARKET

The market for woolen rags has been firm with prices well maintained. This is undoubtedly due to the advance in wool, both at home and abroad and the prospect that mills will be forced to use shoddy and wool substitutes more freely in the future than in the recent past. The exports of rags from Boston, New York and Philadelphia are reported as follows:

Month	lbs.	value
February, 1914	1,193,105	$41,338
January, 1914	2,518,426	84,005
February, 1913	1,849,913	55,431

The trade in shoddy has continued quiet in spite of the movement in the wool and rag market.

The wool waste market is also unchanged with the better grades of stock in fairly good demand. Cotton waste is dull and prices are unchanged. We quote as follows:

SHODDIES AND EXTRACTS

White yarn, best all wool	46-49
White knit, all wool, best fine	30-40
White, knit, No. 2	23-30
Light yarn, extra fine	35-36
New pure indigo blue	24-27

Merino

Fine light, all wool	20-22
Medium light, all wool	19
Fine black, all wool	17-19
Fine dark, all wool, best grade	18-20
Medium dark, all wool, No. 2	13½-15½
Red knit stock, strictly all wool	20-24
Red flannel, all wool	19-22
Dark blue for hosiery, strictly all wool, No. 1	20-22
Dark blue for hosiery, not all wool, No. 2	13-15

NEW WOOLEN RAGS

Fine merchant tailors	6-8
Choice light colors	7-8
Browns	12
Blacks	6
Blues	9
Fine dark	7½-12
Medium dark	4-5½

Serges

Black	9
Blue	10-11

Flannels

Very light	17-18
Mixed	10-11
Black	6-7½

SOFTS AND KNIT STOCK

Soft woolens, best	5½-6½
Old white flannels	11-14
Old red flannels	10-11
Old blue flannels	3-5
Old plaids	3
White stockings	20-24½
Clear dark hoods	7-8
Light hood stock	13-14

South Carolina, Clinton. Twenty-seven hundred new spindles were recently installed in the Clinton Cotton Mills. This is the only improvement made recently and they have not decided in regard to putting in any more new machinery in the immediate future.

South Carolina, Clifton. Drawing frames in No. 3. Mill of the Clifton Mfg. Company are being replaced with new equipment. Recently new water wheels were installed.

*Massachusetts, Lowell. The work of removing the equipment of the Northern Waste Company from Lawrence to Lowell will be started at once.

Interruption of Production

is recognized by textile mill operators as the most costly element of repairs.

Allis-Chalmers TEXTILE MOTORS

are so liberally designed and so sturdily constructed that they will operate for years without need of repairs providing they are properly supplied with oil while in service.

"Motors for all drives"

Allis-Chalmers Manufacturing Company

Power and Electrical Equipments

Milwaukee - Wisconsin

For all Canadian business refer to
Canadian Allis-Chalmers, Limited, Toronto, Ont.

Degrease Your Wool and Save up to 3c a Pound

Degreasing has many advantages over washing with soap and alkali—in addition to saving 1½ to 3 cents a pound.

The actual cost of the degreasing operation

By the Stabler Process

including labor, interest, depreciation, etc., is more than covered by the market value of the grease recovered.

The Stabler Process puts the wool in a lustrous, lofty condition that is ideal for manufacturing. It is made more elastic, stronger and takes dyestuff more effectively than when washed by soap and alkali

A LARGER AND BETTER PRODUCTION AT LESS COST

Write for further details

OWEN STABLER
21 Eddy St., PROVIDENCE, R. I.

Maerten's Water Current Wool Washing Machine
NO FORKS
Increased yield of fibre
Uniform delivery to the squeeze rolls
Production per machine, 2000 to 3000 lbs. per hour

What are Your Silk-Yarn Needs?

The continued use, by the largest and most successful manufacturers of silk and silk-mixture goods, over a long term of years, is our best advertisement of the superiority of

CHENEY SILK YARNS

This patronage has been won through our ability to maintain the high standard set for them. Manufacturers know that our yarns can be depended upon for quality, and experience has taught them that they are best suited for their particular needs.

If you are a user of silk yarns, in any form, we should be glad of the opportunity to submit samples and make quotations on your requirements. We have the experience to enable us to give you any quality desired for any need, and we have the plant (the largest in the United States) to supply it in any quantity.

Silk Yarns for insulation purposes.

Cheney Silks are of superior quality, and include practically every kind of goods made of silk—whether for dresses, millinery, decoration or upholstery, the haberdasher or manufacturer, man or woman.

CHENEY BROTHERS

Silk Manufacturers 4th Ave. and 18th St., New York

National Silk Dyeing Co.

Main Office, PATERSON, NEW JERSEY, 140 Market Street

NEW YORK SALESROOM, 60 UNIVERSITY PLACE

Skein Silk Dyeing of every description for every class of textile manufacture.

Hosiery Dye—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

Piece Dyeing and Finishing—All silk and silk mixed goods.

Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

The silk market is in a very erratic condition. Prices fluctuate widely from day to day. There is very little silk being bought at present. Manufacturers prefer to wait for some sign as to their requirements for the next season.

In Japan the market is reported as being very irregular, and the future uncertain. There has been a movement of late to depress this market, which has met with some success.

Much new silk has been bought up in advance at the prevailing prices, which has no doubt caused lower quotations for the present crop.

In Canton the market is reported firm, but with little activity. It is said, however, that there has been many contracts closed for the first and second crops of Canton silk for this country. In Milan the market is reported weak and inactive. This is owing possibly to the depletion of the stocks of old silk, which because of good business conditions is at a low ebb.

Great activity in the silk trade is reported in France. In Lyons all manufacturers are reported busy, and with a good future ahead.

The silk manufacturers in this country are all very busy in both the broad and narrow lines, and are looking forward to a good year. In the new styles which have been shown, it is noticeable that there is quite an increase in the width of the ladies' skirts. This fact coupled with the extra amount of the finished product which will be required for draping and flounces, leads the manufacturers to expect a large increase in yardage.

Ribbons are still very popular and manufacturers in some lines are not able to keep up with the demand. All indications point to a good fall trade in the ribbon industry.

In the dry goods districts the demand for silk and silk mixed goods was never better. It is said that many of the larger stores report an increase of sales in silk over last year, with every prospect of a good spring and fall business. The printed crepe de chine is still popular, while moires, poplins and messalines are selling well.

Taffetas will surely be popular the coming fall, unless all indications fail. Many manufacturers are planning for a good demand in this line, which is expected to exceed the past year's record.

The cotton and knitting manufacturers are buying some silk, but not in large quantities. It is, however, expected when the season opens they will again be in evidence in the market buying their usual amount of the raw product.

Throwsters are still very busy and are booked with orders ahead.

The silk industry is in a most satisfactory condition, with every indication of a good fall season, with a new crop of silk soon to be on the market, and the demand for the finished product increasing. Manufacturers cannot help but be optimistic as to the future of the industry. Below are prices current:

VILLA, STEARNS COMPANY
Telephone, 6174 Gramercy
American Woolen Building
221 Fourth Avenue, New York
RAW AND THROWN SILK
Silk on Spools, Cones, Quills, Beams
DYED SILK FOR ALL PURPOSES
Philadelphia Office:
538-40 N. Third St.
Providence Office:
Howard Building

THE EMMERICH-DOLSON CO.
MANUFACTURERS OF THROWN SILKS
DYED SILKS FOR ALL TRADES A SPECIALTY DELIVERED IN SKEINS, ON CONES, SPOOLS, TUBES AND WARPS
DEALERS IN SPUN SILKS, WORSTEDS, ARTIFICIAL SILKS
PATERSON OFFICE, 49 HAMILTON ST. 'PHONE 2159 PATERSON
215-219 FOURTH AVENUE, NEW YORK
'PHONE 2212 STUYVESANT

Spun Silk Yarns

For All Purposes

SILK NOILS

Champlain Silk Mills

500 Driggs Avenue

Brooklyn, N. Y.

OFFICES:
New York, 38 East 25th St.
Prov., R. I., Industrial Trust Bldg.

MILLS:
Brooklyn, N. Y.
Whitehall, N. Y.

SAUQUOIT SILK MFG. CO.
INSULATING AND BRAIDING SILKS
ORGANZINE, TRAM AND HOSIERY SILKS
Fast Dye Organzines for Woolen Manufacturers a Specialty
Mills: Bethlehem, Pa., Philadelphia, Pa., Scranton, Pa. New York Representative, Wm. Ryle & Co., 225 Fourth Ave.
Philadelphia Office, 4015 Clarissa St., Nicetown
Chicago Office, 206 So. Market St. Boston Office, 78 Chauncey St.

KROUT & FITE MANUFACTURING CO.,
MANUFACTURERS OF
Silk, Cotton and Mercerized Narrow Fabrics
SPOOL TAPES A SPECIALTY
TELEPHONE CONNECTION OFFICE AND MILL ALLEGHENY AVE. AND EMERALD ST., PHILADELPHIA

SILK CITY WARPING CO.
No. 167 Ward Street, Paterson, N. J.
ADDRESS ALL CORRESPONDENCE TO NEW YORK OFFICE,
CARE E. GERLI & CO., 119 E. 27th STREET
All Frames Equipped with Latest Improvements, Particularly
W. & R. Oscillating Reed Motion,
The Latter Assuring Complete Relief to Strain on Silk
GOODS FULLY INSURED BY FIRE. PROMPT SERVICE GUARANTEED.
Raw Silk Warping a Specialty.

European

Grand Extra Classical Piedmont 12/14	5.05-5.10
Extra Classical Italian 12/14 12/16	4.70-4.75
Classical Italian 13/15 24/26	4.45-4.50
Best No. 1 Italian 13/15 24/26	4.45-4.47½

60 days' basis

Japan

Filature Kansai Extra Extra	4.45-4.47½
Filature Kansai Extra 13/15	4.25-4.27½
Filature Shinshu Extra 13/15	4.17-4.22½
Filature Kansai Best No. 1 13/15	4.10-4.15
Filature Kansai No. 1 13/15	4.05-4.07½
Filature Shinshu 13/15	4.00-4.02½
Rereels No. 1 13/16	Nominal
Rereels No. 1½ 13/16	Nominal
Rereels No. 1½-2	Nominal

6 months' basis

China

Canton XX.\ 14/16	3.50-3.55
Canton XXB 14/16	3.40-3.45
Tsatlee Blue Dragon Flying Horse	3.35-3.40
Tsatlee Kun Kee Mars No. 1	2.80-2.85
Tussah Filature 8 Cocoon No. 1-2	1.45-1.50

6 months' basis

SPUN SILK

Nothing new can be said of this industry. Spinners are still swamped with orders for spun silk, owing to the general demand for the finished product.

Prices remain the same:

60/2	3.70
50/2	3.60
40/2	3.50
30/2	3.35
20/2	3.25
10/2	3.15

ARTIFICIAL SILK

Business in this line seems to be better than at our last meeting. Manufacturers are buying more artificial silk. This is especially true in the hosiery trade. Much of this product is also being used in the woolen and worsted trade for mixing purposes, which combines to make the goods have a better appearance and finer texture.

SPUN SILK
YARNS FOR ALL PURPOSES
AMERICAN SILK SPINNING CO., PROVIDENCE, R.I.

MINDLIN & ROSENMAN
Importers and Manufacturers of
RAW and THROWN SILK, ARTIFICIAL SILK
Mercerized and Cotton Yarns, Yarns and Threads
131 Mercer Street, New York
Our Specialty:
DYED SILK FOR THE KNITTING TRADE
on cones and tubes
Factory and Dyehouse, Brooklyn, N. Y.

Alexander Smith & Son
Warping and Winding
on Commission
Work Done on Frames with Swiss Motion
All Goods Fully Insured
Raw Silk Warping a Specialty
Cor. Front and Ferry Streets EASTON, PA.

United States Conditioning & Testing Company
Cotton, Wool and Silk Conditioning
Fabric Testing and Chemical Analyses
Offices and Laboratories, 340-44 Hudson St., (cor. Charlton St.)
NEW YORK
D. E. Douty, Mgr. F. G. Boye, Supt. K. B. Lamb, Chem. Eng.

WILLIAM RYLE & CO.,
FOREIGN AND DOMESTIC
SPUN SILK YARNS and NOILS
Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.
225 Fourth Ave., Corner 18th St., NEW YORK CITY

A. P. Villa & Bros.

Raw, Thrown and Dyed Silks

Silk on Quills or Beams. Hosiery Silk on Cones

Societa per la Filatura dei Cascami di Seta, Milan (Italy)
Cascami Silk Spinning Company of America

"Cascami"

Schappe, Spun Silk, Cordonnets for Sewing in Skeins—on Cops—Spools —Cones—Beams.
In Gray or Dyed.
Special attention to regularity of sizes.

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Emmett Building, 95 Madison Avenue, New York

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YARNS | **Tram, THROWN SILK, Organzine. ARTIFICIAL OR WOOD SILK.**
Plain, Gassed, Mercerized, Prepared and other Cotton Yarns. Polished and Glazed Threads and Yarns. Mohair and Worsted, Tinsel and Turkey Red Yarns.
Best Quality Harness Twine
109 GREENE STREET, NEW YORK
Silk Throwing Mills BOONVILLE and YONKERS, N. Y. | YARNS

SILK MILL SUPPLIES

OF EVERY KIND AND DESCRIPTION

Also Power Transmission Supplies for General Mill Use

I. A. HALL & CO.
Paterson, N. J.

Allentown Reed, Harness and Mill Supply Co.
Allentown, Pa.

F. ROLKER
23 East Twenty-Sixth Street, New York
Importer and Dealer in all kinds of
RAW SILK
In the Skein or on the Beam. Tel. Mad. Sq. 8868

Eastern Silk Winding and Warping Co.
242 244 PINE STREET, PAWTUCKET, R. I.
Commission Winders and Warpers
Machines equipped with Swiss Motion
Raw Silk Warping a Specialty

150 Deniers First Quality European	1.95
150 Deniers Second Quality European	1.85
150 Deniers English A.,—Bleached	1.95
150 Deniers English B.,—Bleached	1.85
150 Deniers English C.,—Bleached	1.70
150 Deniers Elberfeld Raw	1.75
150 Deniers Chardonette Natural	1.85

SILK MILL NEWS

New Mills.

Canada, Ontario, Brantford. It is reported the Niagara Silk Mills of North Tonawanda, N. Y., will establish a branch plant in Brantford at the corner of Sarah and Drummond Sts., and that a mill, 165 by 52 feet, 3 stories high, will be built, construction work beginning in April. Lloyd D. Barber, an architect of Brantford, is preparing the plans and recently returned from a visit to the other mills of the Niagara Silk Mills. Last December the capital stock of the Niagara Silk Mills was increased to $1,500,000. They manufacture silk gloves, underwear, hosiery and scarfs.

*Massachusetts, Turner's Falls. Officers have been elected by the new McLane Silk Company as follows: Frederick A. McLane, president and general manager; Lester E. Flint, Boston, vice-president, and Charles E. Hazleton, Turner's Falls, secretary and treasurer. The officers and Alvin McLane, of Providence, Fred A. Hutchins, of Boston, and Fred C. Abercrombie, of Turner's Falls, form the board of directors. It is planned to begin the work of erecting the mill building as soon as possible. Details of the building have been given previously. This company was organized by Frederick A. McLane, formerly superintendent of William Skinner & Sons, Holyoke, aided by the Turner's Falls Board of Trade, the Turner's Falls Company, which is a hydro-electric company, and will probably supply the power, and White, Weld & Co., of Boston.

Massachusetts, Worcester. Application has been made for a charter for the Bancroft Textile Company to manufacture silk goods with a capitalization of $50,000. The incorporators are Arthur O. Berry, president; Harold A. Johnson, vice-president and manager; and Charles W. Russell, treasurer. Messrs. Berry and Johnson are connected with the Crompton & Knowles Loom Works, and Mr. Russell is treasurer of the Worcester Slipper Co. It is hoped to begin operations in April.

CONSULTING SILK SPECIALIST

JAMES CHITTICK

122 EAST 25th STREET, - NEW YORK

Costs Calculated, Advice Given on Mill Matters, Damaged Goods, and on Textile Questions of every kind

Mill Properties Reported On

Also Author and Publisher of the Book
"Silk Manufacturing and Its Problems"
580 pages 9x6, price $2.80 delivered

Deals with all phases of Manufacturing, Distributing, Financing, etc. Prospectus sent on request.

SILK MILL NEWS

*New Jersey, Bloomsbury. Twelve thousand dollars has been subscribed by the citizens of Bloomsbury toward the new silk mill and it has been decided to build a brick mill about 80 by 180 feet. John H. Meyer & Company, 50 Union Sq., N. Y., manufacturers and converters of cotton and silk goods, head this project.

New Jersey, Paterson. S. Cominsky, 8 Circle Ave., has ordered machinery for a 10-loom broad silk plant, which he will start up as soon as arrangements are made for manufacturing space.

New Jersey, West New York. Ground will soon be broken at Hudson Ave., 18th and 19th Sts., for a new mill to be built for the Catoir Silk Co., now located at 224 West 26th St., New York City, manufacturers of tailors' trimmings and fine silk specialties, with 200 broad looms. It is expected the new plant will be in readiness to receive the equipment now operated in New York about December 1. It is not planned to largely increase the output, but much of the old equipment will be replaced. The business has just been incorporated with a capital stock of $200,000.

Pennsylvania, Lebanon. Alex. Brueen, of Catasauqua, formerly superintendent of the Central Silk Company at Siegfried, is about to start a broad silk weaving plant here.

Pennsylvania, Pittston. The Frisbie Throwing Company, with plants at Dickson City and Tobyhanna, and offices at Scranton, has leased for ten years the Armory Bldg., on Warren St., and will equip it for silk throwing. It is understood that employment will be given to about 120 hands. This branch will be known as the Nino Silk Throwing Company.

Pennsylvania, Scranton. A new throwing plant of 6,000 spindles has been established on Cliff St. under the name of the Cliff Throwing Company. Electric power is used. George W. Hartz is superintendent.

Pennsylvania, Scranton. Three floors in the factory building at 6 Lackawanna Ave. have been leased by a concern known as the Ramsey Silk Throwing Company.

Pennsylvania, Shamokin. The People's Silk Company has just been organized and a site for the proposed mill has been secured on what is known as the Neillson tract. Plans are now being drawn.

Enlargements and Improvements.

*Connecticut, South Manchester. Cheney Bros. have had plans prepared for a weave shed which will have two floors, 150 by 321 feet, and a yarn dye house, two stories high, 80 by 326 feet. These new buildings are for the velvet department.

Massachusetts, Taunton. D. G. Dery has placed an order for fifty additional looms for the Taunton plant. Broad silks are manufactured.

New Jersey, Paterson. The Main Silk Company, located in the Waverly Mill, have added a number of looms, filling up their entire manufacturing space.

You want PROFITS
where they can be
SEEN and FELT.
That's where
Graves Garnetted Stock
puts the
DOLLARS
for you.
Write for samples.
Made of Cotton, Wool and Silk.

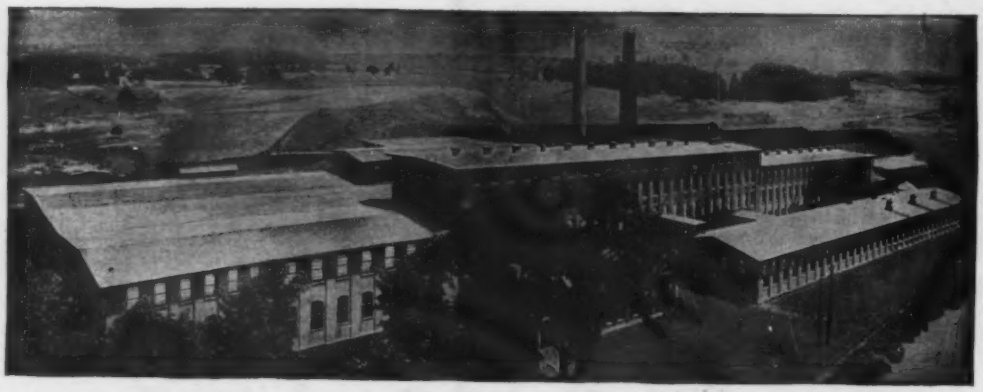
Frank B. Graves Co.
34 Arch Street, Albany, N.Y.

Vulcan Fibre Roving Can.

BODY—Vulcanized Fibre. SIDE SEAM—Riveted with patented Clinched Rivets. RINGS—Tinned Steel, Brazed Joints, Curled Edges. BOTTOM—IXXX. Tin Star Corrugation; Fastened without the use of nails or screws, will not crack, warp or shrink and cannot come out. FINISH—Coated inside and out with moisture proof coating, handsome and smooth. WEIGHT—About one half pound per inch diameter. SIZE—All cans to any exact size, perfectly round any true. DURABILITY—Superior to any other can.

Also Manufacturers of
HILL'S IXXX TIN AND GALVANIZED IRON DYE HOUSE CAN.

James Hill Manufacturing Co., Providence, R. I.



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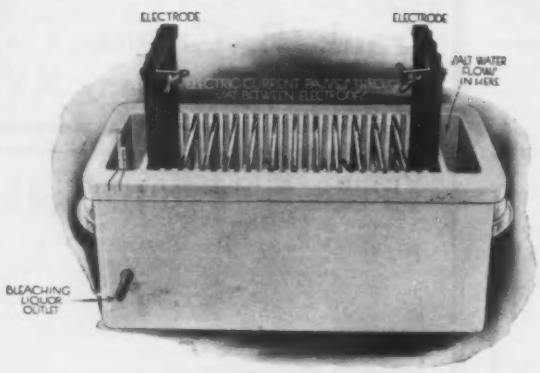
Sheetings, Shirtings, Lawns, India Linons.
Everything in White Goods.
Capacity, 30 Tons Daily

JOHN MacMANUS, Manager CHADWICKS, N. Y.

Make Your Bleach Out of Salt Water.



The cut represents our passage type Electrolyzer producing in 10 hrs. the equivalent of 50 lbs. of chloride of lime, operating under 110 or 220 DC, and nothing is used but salt-water and electricity.

THIS IS NOT AN UNTRIED THING

having many years ago passed the experimental stage. We have sold Electrolyzers to many of the large Knitting Mills, both hosiery and underwear, and so far are not aware of any purchaser not being thoroughly satisfied. There is absolutely no question about its merits.

Write, giving amount of lime used daily, current available, with costs.
We make machines of special construction for any purpose.

The National Laundry Machinery Co., Dayton, O., U. S. A.

FIRE, LIGHTNING, WINDSTORM.

The HOME INSURANCE COMPANY NEW YORK

Elbridge G. Snow, President

Organized 1853 MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $6,000,000

ASSETS, January 1, 1914 ..... $33,139,915.81
LIABILITIES (Except Capital) 17,066,896.12
SURPLUS AS REGARDS POLICY HOLDERS .. 17,873,019.69
Losses Paid Since Organization over 145,000,000.00

INDEMNITY
For Loss of
Profits
Commissions
Use and
Occupancy
on acceptable
Protected Plants
at the
Minimum Rate

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

OWNERS OR TENANTS may have for the asking proper advices in relation to the FIRE HAZARD and the Value of Automatic Sprinkler and other protection for the manufacturing or distributing plant. Correspondence invited by the

DEPARTMENT OF IMPROVED RISKS
56 CEDAR STREET, N. Y.

DYESTUFFS AND CHEMICALS

Acetic, 100 lbs.	2.16-2.56
Citric, domestic	38
Copperas	65-80
Oxalic	7-8
Sulphuric, 66°, 100 lbs.	1.00-1.25
Muriatic, 18°	1.15-1.65
Tartaric crystals	30-33

Miscellaneous Chemicals and Dyestuffs

Acetate of lime, gray, 100 lbs.	2.50-2.60
Alum, lump	1.75-1.90
ground	1.85-2.00
powdered	3.00-3.15
Aqua ammonia, 26°	2-5
Borax	3-5
Cream tartar, crystals	23-25
Fuller's earth, powdered, ton	18-20
Glauber's salt	75-85
Potash, chlorate, crystals	8½-9½
powdered	9-14½
carbonate	3-6
Soda, bicarbonate	1.15-1.50
Soda, caustic, domestic, 60 per cent.	1.80-1.91
Sal., American	65-85
Vitriol, blue	4.76-5.00
Acetate of soda	4-6
Acid, picric, best crystals	70-75
tannic, commercial	36-37
Albumen, egg	42-65
blood	21
Aniline, oil	9½
salt crystals	8½-9½
Alizarine	15-16
Bichromate of potash, American	7-8
Bichromate of soda	4-7
Bisulphite of soda	75-1.25
Cutch, bales	5-8
Dextrine, imported potato	4-7
Divi-divi, ton	33-47

COTTON MILL NEWS

Mills Starting Up.

Georgia, Hawkinsville. A company is being organized by C. P. Gentry and associates, of Greenville, S. C., to take over and operate the Southern Cotton Mills at Hawkinsville, which have been idle for two or three years. The new company will be known as the Hawkinsville Cotton Mill and will have capital stock of $75,000. Mr. Gentry will be president and general manager. The plant contains 3,000 ring spindles and 140 looms which have been operated on four-yard sheetings. This equipment will be overhauled and a few automatic looms will be installed. Sheetings will be manufactured.

*North Carolina, Central Falls. The Central Falls Mills, a new concern which has taken over mill No. 2 of the Worth Mfg. Company, has begun manufacturing. R. L. Caveness is secretary and treasurer, and E. O. York is superintendent.

South Carolina, McColl. Orders have been placed by the Marlboro Cotton Mills for 6,000 new spindles and 16 roving frames. This new machinery will replace old equipment.

The WM. H. LORIMER'S SONS CO.,

MERCERIZERS AND DYERS

Manufacturers of

MERCERIZED YARNS

FOR ALL PURPOSES

ONTARIO AND LAWRENCE STS., PHILADELPHIA, PA.

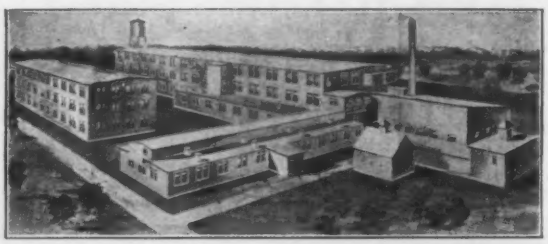
Skeins, Cones, Tubes and Warps

Western Representative,
E. G. HARPER,
701 Medinah Bldg., Chicago, Ill.

PETER B. MCMANUS, Pres. and Treas. EDWARD J. MCCAUGHEY, Secy. and Mgr. JOHN MCMANUS, Vice-Pres

HOME BLEACH AND DYE WORKS, Inc.

DYERS, BLEACHERS AND MERCERIZERS OF



COTTON YARNS

IN SKEIN, AND LONG AND SHORT

CHAIN WARPS

FAST COLORS A SPECIALTY

Daily Capacity 20 Tons

FAST COLORS AND BLACK FOR WORSTED TRADE

Office and Works, Pawtucket, R. I.

ESTABLISHED 1881

GLOBE DYE WORKS CO.,

Successors to R. Greenwood & Bault

DYERS BLEACHERS AND MERCERIZERS

OF COTTON WARPS AND SKEIN YARNS

Globe Bleach and Dye Works, Oxford and Worth Sts., Frankford, Pa. 140 Chestnut St., Philadelphia

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English Calender Roll Papers

For Embossing and Other Calenders.

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Willard and Jasper Sts., - Philadelphia

DYERS OF SKEIN SILK

FOR ALL TEXTILE PURPOSES

Fast Colors on Silk for Worsted Manufacturers

Pure Dye and Weighted. Bright and Souple.
Dyers of Peerless Black on Artificial Silk.

JOHN F. DAVIDSON

(ORIANNA BLEACH WORKS)

BLEACHER

Of Turkish Towels, Cotton Yarns, Underwear, Cotton Hosiery and Tapes.

2558-2564 North 3rd St. 2557-2563 Orianna St., PHILADELPHIA
Office, 2557 Orianna Street. Correspondence Solicited.

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MERCERIZERS

Dyers and Bleachers of Skein Yarns. Twines and all Narrow Fabrics. Printers' Knotting Cords a specialty, on tubes or balls (our Fast Black will please you).

T. HOPKINSON, Prop'r and Mgr. G. W. HOPKINSON, Supt.

Office and Works, 259 Forest St., FALL RIVER, MASS.

DYERS of all kinds of YARNS

For Manufacturers of: Men's Wear, Dress Goods, Carpets, Rugs, Upholstery, Hammocks, Shoe Goring, Webbing, Gas and Electric Tubing, Braids and Novelties. Better work, prompter, better service than you get elsewhere.

T. BROPHY'S SONS, Jasper St., above Clearfield St., Established 1845 PHILADELPHIA, PA.

SILK MILL NEWS

New Jersey, Paterson. Ten new broad silk looms have just been added to the equipment of the Robins Silk Co. This fills up their manufacturing space.

New Jersey, Paterson. The Gerard Silk Mills, located in the Levy Mill, are looking for larger quarters in order to make additions which will increase the output of silk ribbons.

New Jersey, Paterson. M. Salzberg & Sons are seeking larger space and will increase their equipment. Just how large an increase will be made they are unable to state at present. They are manufacturers of broad silks and are located at present at 93 River St.

*New Jersey, Paterson. The new building being erected for the Goldy Ribbon Co. is nearly completed and the management is giving consideration to the purchase of new equipment.

New Jersey, Paterson. More looms will be added to the plant of the Queen-Armor Silk Mfg. Co., located in the Paragon Mill, and additional space has been leased. This company manufactures broad silks.

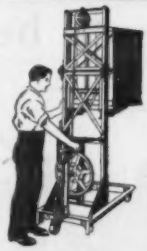
New Jersey, Paterson. The Secaucus Silk Mfg. Co., Inc., recently organized to take over the business of the Secaucus Silk Company, corner of River and Bridge Sts., has added eight new looms to the plant. Twenty looms are now operated on broad silks. The capital stock of the company is $10,000. Samuel Abrash is treasurer, manager and buyer.

New Jersey, Paterson. Eight more looms for weaving broad silks are to be installed in the plant of Miller & Katz and are expected to be in operation about April 1.

*New Jersey, Paterson. The new location of the Baker Silk Company is in the Bamford Mill at Cliff St. and Belmont Ave. Much larger quarters are occupied and increases will be made in the equipment, bringing it up to 720 spindles and 108 looms. Harry Kaplan is president, and Simon Baker, treasurer. Broad silks are manufactured.

New York, Binghamton. Additional looms are being installed in the Miller silk mill, recently purchased by the Cedar Cliff Silk Company of Haledon, N. J. and operated by them as a branch. It is reported that 150 looms are to be added, which will make a total of 250 looms in this plant.

*New York, Gloversville. Construction work will be started early in April on the enlargement to be built to the plant of the Fulton County Silk Mills, Inc., and they expect to have the building completed by July. The plans have been approved and bids invited. The structure will be 3 stories high and will have a ground measurement of 98 by 56 feet. It will be of brick and concrete. A modern sprinkler system will be installed and careful attention will be paid to ventilation and the convenience of employes. The new equipment to be installed includes 10 winders of 80 spindles each, and 10 broad looms for making silk glove cloth. Another story is to be built on the 2-story brick mill erected a year ago and this addition will be connected with the new building.



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Tiering Machine

enables one man to do the work of four or five in lifting heavy cases, bales, rolls and barrels. Utilizes all your storage space. Safe, Simple and Practicable. Standard and special machines to operate by hand, electricity or pneumatic power.

Full information upon request.

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WILLIAM SCHOFIELD CO.
Krams Ave., formerly Church St., Manayunk, Phila., Pa.
Textile Machinery

Makers of Rag, Wool, Hair and Finishing Pickers, Automatic Square and Cone Willows, "Schofield" Intermediate Feed for Cards, Rag and Extract Dusters, Waste Pullers, Worsted and Shoddy Reels, All Kinds of Spike and Slat Aprons.

Special Machinery Built. General Machinery Repairs.
Relagging Picker Cylinders a Specialty.

Don't Be
A Shuttle

Don't move in the same old rut all your life without ever advancing to better work or better salary. You can secure in your own home, in your spare time, and without leaving your present work, the most powerful force for promotion in the world. Thousands have obtained increased earnings through the I. C. S. Write us a postal today, stating the position you would like to obtain. Advice of experts and booklet free.

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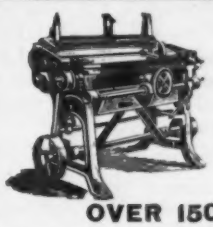

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Patent Automatic
Flat Grinder

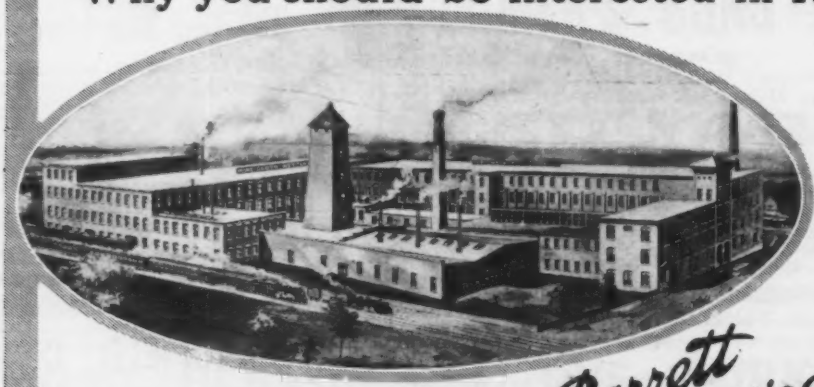
Ensures:
BETTER SETTING!
BETTER CARDING!
MORE CARD-POINTS AT WORK!

OVER 1500 IN USE

Made by the same Dronsfield as the world-famed Traverse & Long-Roll Grinders.

Supplied by all the Textile Machinery Importers, - Boston, Mass.

Why you should be interested in Roofing



Wright Wire Company, Worcester, Mass., Buildings covered with Barrett Specification Roofs exclusively.

Barrett Specification Roofs

FREQUENTLY the building of a roof on a factory or warehouse, or any building, is regarded as merely incidental to the whole proposition.

Great care and thought is spent in deciding whether to use stone or concrete for the foundation. Even the choice of materials for the fence about the place gets its share of attention.

But with many owners of buildings the roof is only a roof and they take it as a matter of course that they must repair leaks every now and then.

Do you realize that this is the wrong viewpoint?

The roof is the most important part of the structure. If properly specified, you will be free from leaks and trouble and expense.

The Barrett Specification is the scientific standardization of an old established theory of roofing—one that has stood for years as the best in roofs—namely, a combination of coal tar and pitch, tarred felt and gravel or slag.

It *you* want a really waterproof, fire-retardant roof that will last 20 years or more, insist that it be laid strictly according to The Barrett Specification.

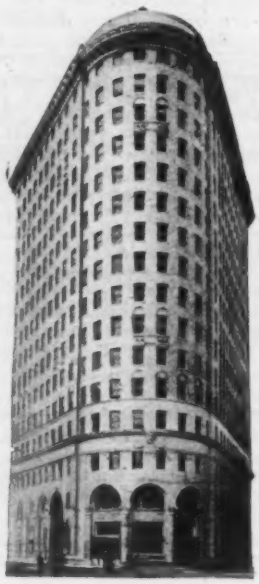
Special Note

We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding.

If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified and subject to the inspection requirement.

The Turks Head Building
Providence, R. I.
Architects, Howells & Stokes
Builders, Thompson-Starrett Co., New York.
Barrett Specification Roof



A copy of the Barrett Specification in full sent free on request. Every owner, builder and engineer should have it.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Kansas City Cleveland Cincinnati Minneapolis Pittsburgh Seattle Birmingham

THE PATERSON MFG. CO., Limited:—Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

TRADE B MARK

MILL STOCKS

FALL RIVER MILLS

	Bid.	Asked.
American Linen	...	70
Arkwright	...	65
Bernard Mfg.	...	60
Bourne	...	110
Border City	99	100
Chace	103	...
Charlton	83	...
Conanicut	...	100
Davol	85	90
Davis	85	...
Flint	...	102
Hargraves	...	50
King Philip	108	...
Laurel Lake	...	117
Lincoln Mfg.	...	85
Luther Mfg.	...	127
Merchants Mfg.	...	85
Mechanics	...	90
Narragansett	...	107
Osborn	100	105
Pilgrim, pfd.	...	90
Pocasset Mfg. Co.	98	102
Richard Borden	120	...
Sagamore Mfg.	170	172½
Seaconnet	...	56
Shove	...	77½
Stafford	75	80
Stevens Mfg.	120	...
Tecumseh	102½	105
Union Cotton	173	...
Wampanoag	...	85
Weetamoe	...	87½

OTHER NEW ENGLAND MILLS

	Par Value.	Last Sale.
Aetna	100	‡100
American Woolen, pfd.	100	77
Amoskeag	100	65
Amoskeag, pfd.	100	99
Androscoggin	100	135¼
Appleton	100	172
Arlington	100	80
Bates	100	221¾
Bigelow Carpet	100	157
Boott Mills	100	98
Boston Mfg. Co.	100	*105¼
Boston Duck	700	1240
Brookside Mills	100	113⅜
Cabot Mfg. Co.	100	120
Chicopee	100	90
Columbian	1000	‡1012½
Continental	100	75¼
Draper	100	230
Dwight	500	1021¼
Edwards	100	‡99
Esmond, pfd.	100	90
Everett	100	110
Franklin	100	205
Great Falls	100	180
Hamilton Woolen	100	95
Hamilton Cotton	100	83
Hill	100	90¼
Jackson	1000	890
Lancaster	100	92
Lawrence	100	151¾
Lockwood	100	99
Lowell Bleachery	100	125
Lowell Hosiery	100	40
Lyman	100	120¾
Massachusetts	100	116
Massachusetts Mills in Ga.	100	93¾
Merrimack, pfd.	100	85
Merrimack, com.	100	30⅛
Middlesex	100	58½
Monadnock Mills	1000	‡1000
Nashua	500	665
Naumkeag	100	180
N. E. Cotton Yarn, com.	100	24
N. E. Cotton Yarn, pfd.	100	67
Newmarket	100	90⅛
Otis	100	‡1352½
Pacific	100	112½
Pepperell	100	290¾
Pemberton	100	99
Plymouth Cordage	100	228
Salmon Falls Mfg. Co.	300	‡275
Shaw Stocking Co.	100	75
Thorndike	1000	‡1062½
Tremont & Suffolk	100	99
Winthrop	100	100
Waltham B. & D.	100	*129
York Mfg. Co.	100	85

* Ex-dividend.

‡ Old quotations that are considerably at variance with recent figures at private sale.

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	135	...
Beacon Mfg. Co., com.	102½	...
Beacon Mfg. Co., pfd.	114	115
Booth Mfg. Co., com.	...	21
Booth Mfg. Co., pfd.	52½	...
Bristol Mfg. Co.	...	70
Butler Mfg. Co.	...	90
Butler Mfg. Co., pfd.	...	100
City Mfg. Co.	91	...
Dartmouth Mfg., com.	143½	...
Dartmouth Mfg., pfd.	100	...
Gosnold Mfg. Co., pfd.	...	93
Grinnell Mfg. Co., com.	165	...
Holmes Mfg. Co., com.	100	...
Holmes Mfg. Co., pfd.	100	...
Kilburn	110	...
Manomet	113½	...
Nashawena Mill	66	...
N. B. Cotton Mills, com.	100	...
N. B. Cotton Mills, pfd.	...	98
Nonquitt Spinning Co.	91	95
Neild Mill	95	...
Page Mill	...	70
Pierce Mill	300	...
Pierce Bros., Ltd.	100	...
Potomska Mills	122½	...
Quissett Mills	97½	...
Quissett Mills, pfd.	...	100
Sharp Mfg. Co., com.	...	85
Sharp Mfg. Co., pfd.	107½	110
Soule Mill	...	86
Taber Mills	...	100
Wamsutta Mills	123	125
Whitman Mill	122	...

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SILK MILL NEWS

*New York, Port Jervis. Negotiations have been completed for the removal of the Paterson plant of Kattermann & Mitchell Company to Port Jervis. The Board of Trade has agreed to meet the suggestion of Kattermann & Mitchell Company in the matter of providing a tract of land for a $35,000 mill building with plenty of room for enlargement. An option has been secured on a piece of property which Mr. Kattermann thinks is suitable. Funds are now being raised for the purchase of the land and Kattermann & Mitchell Company will have plans drawn at once for the mill.

*New York, Watertown. It is proposed to make improvements and increases in the plant of the Toohey Silk Mills, Inc., formerly the Valentine & Bentley Mill. Peter A. Toohey, the head of the new concern, with offices at 357 Fourth Ave., N. Y. City, attends to the buying.

Pennsylvania, Allentown. D. G. Dery is equipping a mill building 274 by 54 feet, 2 stories high, with machinery for warping and winding. Orders for the machinery have been placed and the plant will be started as soon as it is delivered. Forty more looms have been ordered for the weaving plant here.

Pennsylvania, Hanover. E. & H. Levy, operating a silk mill in this town, have awarded a contract to William Klunk, 612 Carlisle St., York, Pa., for the erection of an addition to the plant which will cost in the neighborhood of $10,000. The operation will be started at once. The branch at Shelton, Conn., is to be discontinued, according to report, as noted in another column.

*Pennsylvania, Macungie. It is expected the addition to be built for the Macungie Silk Company will be completed about June 1. Eighteen ribbon weaving looms will be installed. The addition will be 81 feet long and the width of the present mill and construction work will be started as soon as weather permits.

*Pennsylvania, Martin's Creek. The mill formerly occupied by the Clarke Knitting Co. and recently purchased by the Haytock Silk Throwing Co. of Easton, will be equipped with 3,000 spindles for silk throwing, and it is expected that it will be ready to start operation about April 15.

*Pennsylvania, Plymouth. It is expected the new mill to be built for the Atwood Silk Company will be in readiness about August 1. Particulars of the increase have been given in previous reports. The plans call for a 4-story mill to be built on South Main St., below Franklin St., on a lot 250 by 60 feet. The business was recently incorporated with capital stock of $100,000 and officers have been elected as follows: Dayton O. Atwood, president; Lewis C. Atwood, secretary and treasurer. In addition to a desire to increase its facilities the company was also influenced in changing the location of its plant on account of danger from floods. In the past, heavy losses have been suffered from high water. The plans for the new mill have been completed and the construction contract will be let within a few days.

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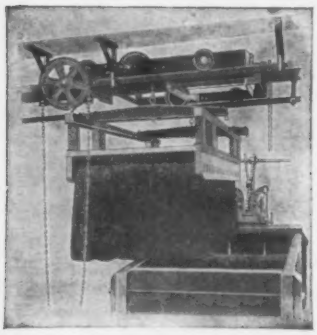

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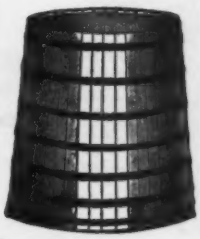

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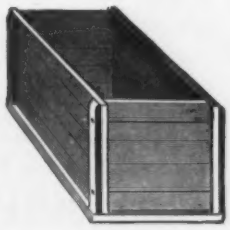

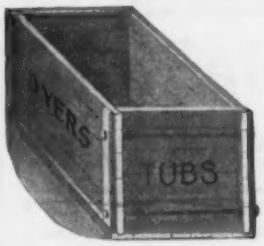

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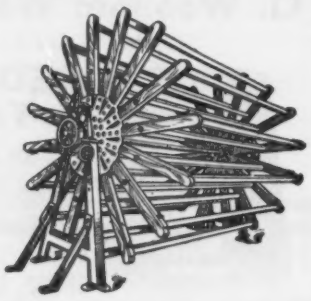

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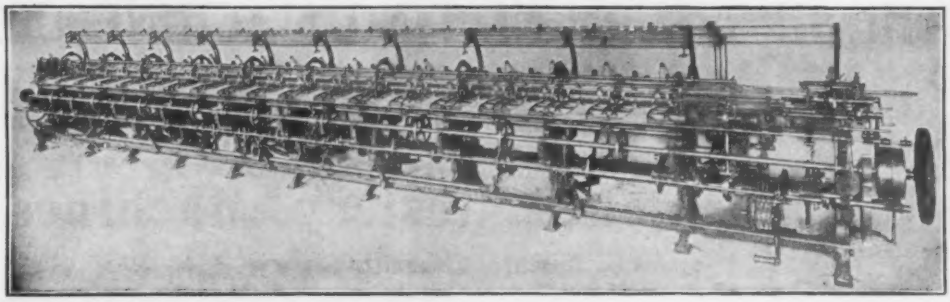

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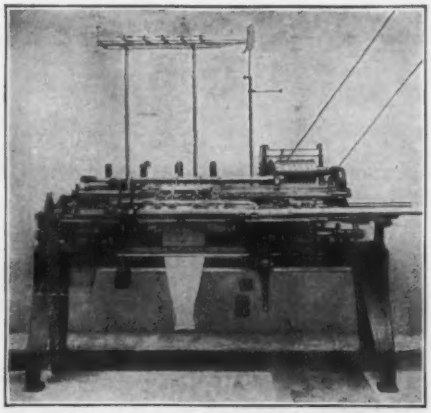

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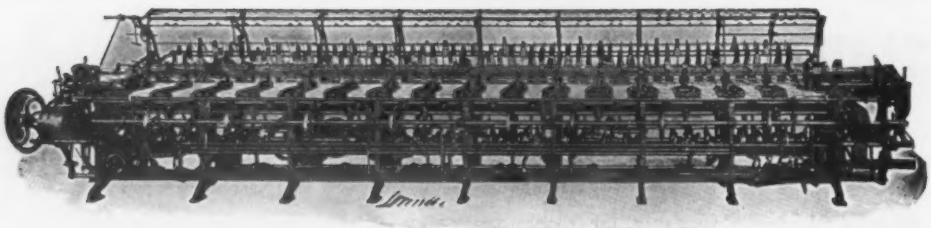
Full Fashioned Hosiery Machines

System **G. Hilscher, Chemnitz, Saxony**

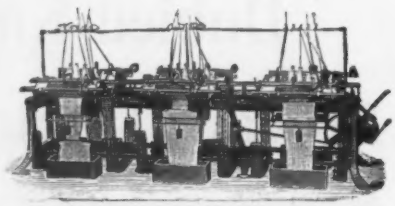


16 Section "COTTON HILSCHER" Machine for Full Fashioned Hosiery, Silk, Cotton, Wool, etc.

Gold Medal, Paris, 1900 — Numerous Patents Covering Special Improvements

GROSSER Flat Knitting Machines

For HAND Power or FULLY AUTOMATIC Power MACHINES. Most productive and best machines for Sweaters, Jackets, Blouses, Wool Hosiery, Gloves, Mittens, Sporting Goods in Plain, Fancy and Jacquard Work, Shaker Articles, etc. Large stock on hand. Power Machines to be seen in operation.



CIRCULAR FRENCH FRAMES

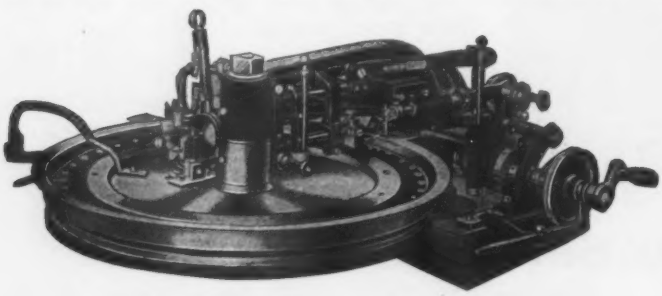
C. Terrot Söhne, Cannstatt, Würt, famous builders of the best Circular Frame for Finest Underwear, Fleece Linings, Gloves, Special á-jour (openwork) Fabrics, etc.

RASHEL MACHINES [Double Rib Warp Knitting Machines.]

For Fancy Goods in largest variety, Shawls, Capes, Caps, Borders, Fringes, Lace Work, etc., in silk, wool, cotton.

THE LOOPER THAT LOOPS!

Two thread lock stitch machine with reliable trimmer and raveller producing *indestructible, flat elastic seam.* No hosiery or underwear plant up to date without this machine.



DIAMOND OVERSEAMERS

for all classes of selvage goods, Full Fashioned Hosiery, Underwear, etc.

FINISHING MACHINES

for Knit Goods of all styles.

WINDERS

for finest yarns.

Information, Samples and Specifications at Your Disposition.

The New Model Banner

HEMPHILL'S LATEST FULL AUTOMATIC MACHINE

The First Practical Revolving Cylinder Machine on the Market

Built for either plain or split foot work, single or double feed. Adapted to manufacture hose with linen or mercerized heel or toe.

Some of the latest improvements include

Accordion Stitch

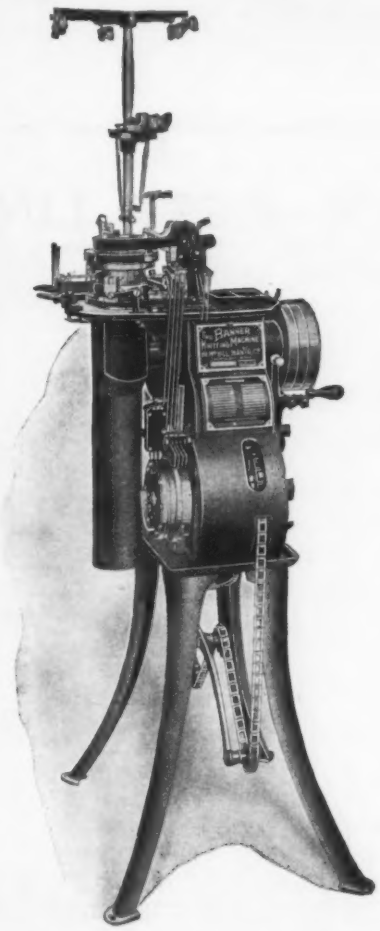
Tuck Stitch

All-round Drop-stitch

These Improvements are fully AUTOMATIC

Largest Production
Highest Speed
Simplest
Least Repairs

Produces a Superior Quality of Work



The NEW Features

1. Six Yarn Change Levers.
2. Improved Plaiting Device.
3. Simplified High Splice and Double Sole Mechanism
4. Positive Yarn Engaging Device.
5. Single Pick allowing increased production of 15% to 20% in knitting heel and toe.

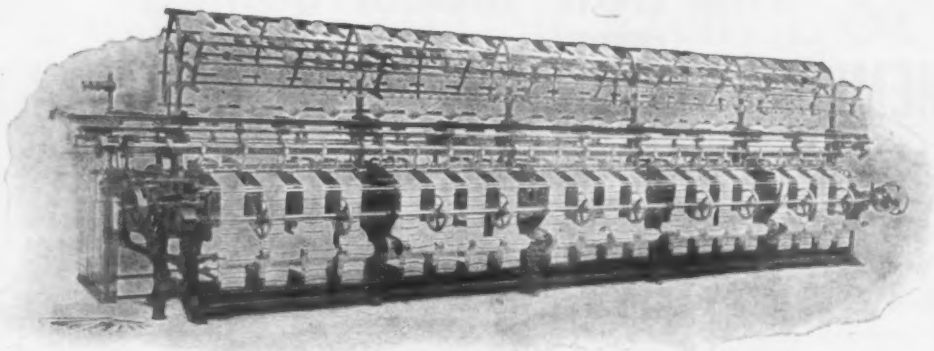
All working parts accessible from front of machine

Over 4800 sold and delivered during the year 1913 as compared with 3700 in 1912

HEMPHILL MFG. CO.

131 CLAY STREET, - - - - PAWTUCKET, R. I.

AVERAGE PRODUCTION ONE HUNDRED MACHINES A WEEK



A Twenty Division Fast Rib Top Frame "Boer" Type

OUR BEST LINES

The "BOER" Straight Rib Frame

Fast
Simple

Makes perfect web French welt, striping checks, racked effects, shot ribs, etc.

PERFECTION SILKS

Cottons System Rib Frame

Full fashioned ribbed hosiery with shot effects. Beautiful lace designs also with shot effect.

Cottons System Plain Frame

For finest and highest grades of hosiery in silks, lisles, etc. up to 57 gauge.

Flat Knitting Machines

Hand or power

for

Every requirement

Any guage
Any size
Any number of heads

Jacquard effects
Tartar effects
Fancy tuck effects

for

Sweaters
Golfers
Coats
Mitts
Gloves, etc.

The very latest in Links and Links

Machines hand or power. with or without jacquard.

Circular Machines

for

Plain flat work
Lace open work
Collarettes

Striped work
Fancy tucks
etc.

Built up to

Forty needles per inch

Any size up to 60" diam.

Up-to-Date Loopers

Improved Seamers

Auxiliary machinery of all kinds and special machines to clients own specifications.

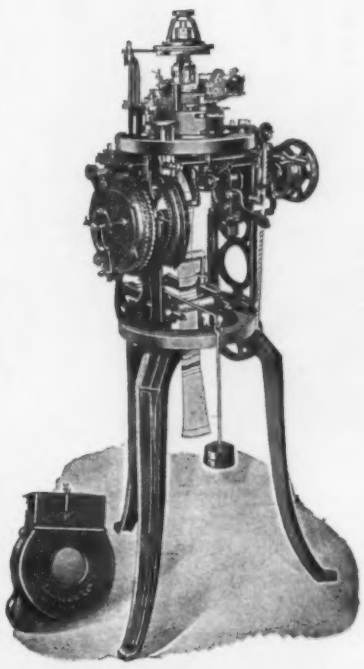
G. STIBBE & CO., Leicester, England

American and Canadian Representative

Howard Sillcocks, 1310 Downing Bldg., 106 Fulton St., N. Y. City

A Still Newer Necktie Machine

For Diagonal Patterns



AMONG our other new features are a body machine with revolving cams, instead of revolving cylinder and dial.

This machine is equipped with the dogless attachment, thus eliminating the many troubles due to the use of dogs with which all other American rib machines have to contend.

In addition there is a new friction drive which facilitates starting the machine from either front or back.

Also an improved yarn guide and latch guard.

Wildman Mfg. Co.

Established 1889

Norristown, Pa.

Trade Mark

Full Fashioned Hosiery Machines

BUILT BY

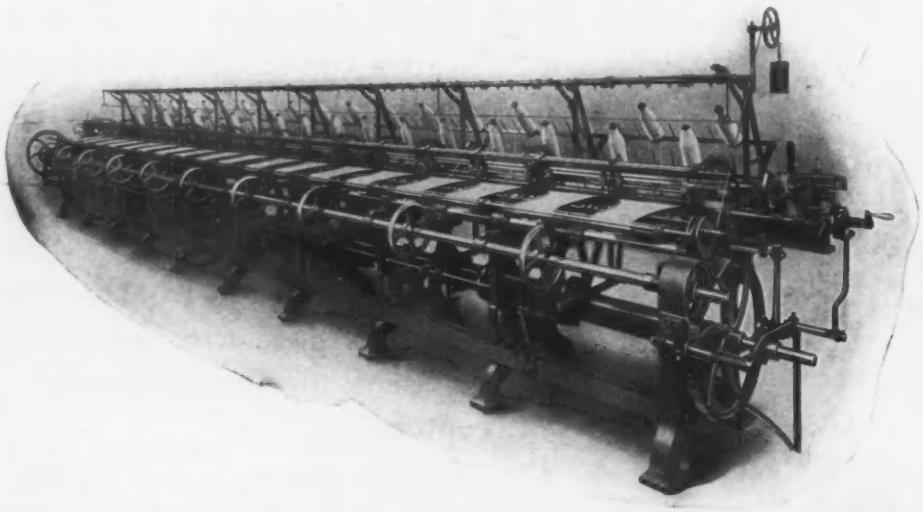
Schubert & Salzer Maschinenfabrik

and their two Branch Works

H. ALBAN LUDWIG and THEODOR LIEBERKNECHT

Chemnitz, Germany

Largest Manufacturers of all Classes of Hosiery Machines



Schubert & Salzer, in addition to the plant of H. Alban Ludwig, have recently acquired the plant of Theodor Lieberknecht and continue to build Full Fashioned Hosiery Machines in each of the three plants, retaining the special features of each individual type and at the same time using on all three machines various patented devices and all the practical attachments known to the trade. These machines are built in all gauges from 14 to 34 needles to the inch and from 12 to 24 sections.

Best Constructed, Most Economical and Productive Machines on the Market

REFERENCES:

All the leading manufacturers of full-fashioned hosiery in this country.

American Representative:

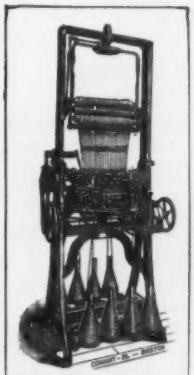
OTTO WALTHER, 507 Bourse, Philadelphia

CHARLES COOPER

BENNINGTON, VERMONT.

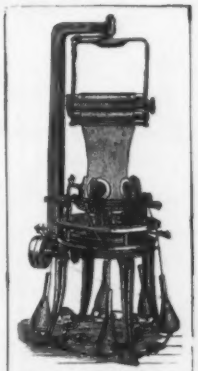
MANUFACTURER OF

Knitting Machinery



Circular Spring Needle Rib Top Machine.

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder.



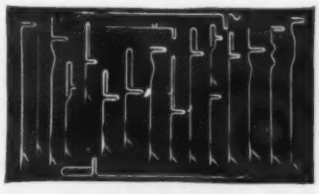
Spring Needle Circular Plain Body Machine.

Spring Needle Cylinder Rib-Top Machines

For making Cuffs, Drawer Bottoms and Shirt Borders.

Spring Needles.

Spring and Latch Knitting Needles, Burr Wheels, Burr Blades, Sinkers, Jacks, Etc.



Latch Needles.

COLLARETTE ATTACHMENT.

AMERICAN REPRESENTATIVE.

G. H. ROGERS,
838 Lancaster St., Albany, N. Y.

EUROPEAN REPRESENTATIVE.

FELIX LEDERER.
Ix/4 Schubertgasse, Nr. 22, Vienna, Austria.

A New "Union Special"

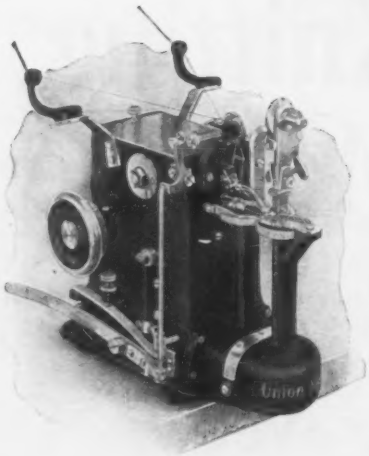
Cup Feed Machine for Seaming Selvage Edge Hosiery

Quiet, Light Running, High Speed

Double Thread Interlock Seam
perfectly flat and non-irritating

Ends of Seams Locked
giving looper finish

Finest Gauge Silk Fabric
To heaviest cotton hose seamed with equal facility



Improved Adjustable Uncurling Device
insuring perfect seam

Both Feeding Cups Actuated
insuring positive feed upon both selvages, avoiding puckered seam

Quickly Adjustable Stitch Regulator
without interchanging parts.

Union Special Machine Company

HOME OFFICE AND FACTORY
300 W. Kinzie St., Chicago, Ill.

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FOR MAKERS
OF TEXTILE AND KNITTING MACHINERY

HIGH GRADE COLD FINISHED STEELS
To Temper or Not to Temper. Large and Complete Stock for Prompt Shipment

SEAMLESS STEEL TUBING
Bars, Strips, Sheets, Rods and Wires. Close Forged Cylinder Rings and **Dials.**
Twist Drills. Send for Catalogue "D." Milling Cutters.

FIELD & COMPANY, Inc.

116 North 7th Street **Philadelphia, Pa.**

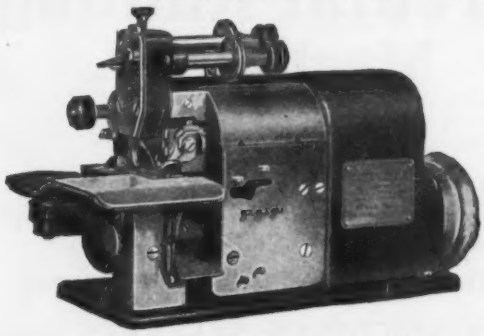
The Merrow

FAST

DURABLE

Light Running

High Speed Overseaming, Overedging and Shell Stitch Machines are



OUR CLASS 60 MACHINES for Trimming and Overseaming in one Operation produce the strongest, best Seams and do it with the greatest economy.

USE STYLE 18 for Horse Blankets.
STYLE 17 B or 22 for Bed Blankets.
STYLE 35 E SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. 467 Broadway, cor. Grand St., N. Y.
815 West Van Buren St., Chicago, Ill. 1019 E. Baltimore St., Baltimore, Md.

Imported Knitting Machines of Quality

SPECIALTIES

Karl Lieberknecht, Oberlungwitz, Saxony

FULL FASHIONED MACHINES. "System Cotton" for plain and ribbed Hosiery, Underwear, Gloves and Neckties.

RIB MACHINES, high speed, for Rib Tops, Neckties, Hosiery in plain, striped and accordion effects.

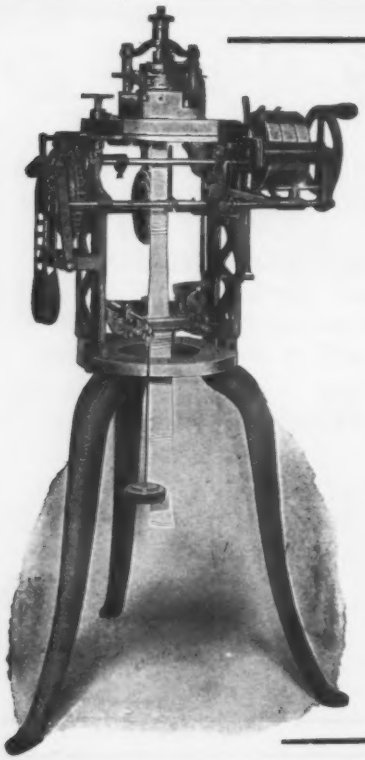
WARP MACHINES **(150 COURSES PER MINUTE)** for Tricot Fabrics.

Otto Seifert, Burgstaedt, Saxony

WARP MACHINES, for Elastic Hat Bands, Mourning Bands, Shawls and Scarfs.

JACQUARD WARP MACHINES, for Veilings, Laces, Shawls, Insertions, etc.

Louis Hirsch 173-177 Lafayette St., New York City
Sole Representative in U. S. and Canada



H. BRINTON COMPANY

213-217 Race Street, Philadelphia, Pa.

BUILDERS OF

Circular Knitting Machinery

of every kind for every purpose

HOSIERY RIBBERS

with Splicing, Striping, Two-speed, Selvage Welt and French Welt Attachments.

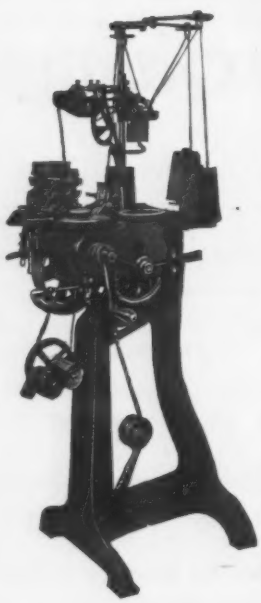
Full Automatic Hosiery Footers

BODY MACHINES, SLEEVERS, etc.

for Underwear, Sweaters, Toques, etc.

NECKTIE MACHINES

for making all kinds of tubular knitted scarfs.
Write for catalog, prices and samples.



THE INVINCIBLE

Full Automatic Knitter

"The Knitter That Knits"

All The Time

SEAMLESS HOSIERY
OF
QUALITY

JENCKES KNITTING MACHINE CO.
Pawtucket, R. I.

Philadelphia Show Rooms, 1211-1217 Filbert Street

Ames Five-in-One

Leads the Knitting Machine Field in Simplicity, Adaptability and Productivity.

In its capacity to produce a large variety of styles—of superior quality.

At economical cost—this machine has no equal. Why?

Because it is, in effect

FIVE MACHINES IN ONE

We make some rather startling claims for this machine.

But we are prepared to guarantee them fully—

And to place the machine on trial and let it prove that you want it. Will you have full details—now?

The A. N. Ames Knitting Machine Company

Factory and Main Office, Main St., Franklin, N. H.

THE MOST COMPLETE LINE OF

Sweater Coat Machines

Automatic Racking Machines with or without striping attachments.
Herring Bone Stitch Coat Machines.
Plain Sweater Coat Machines.
Pineapple Stitch Sweater Machines.
Jersey Sweater Machines.
Plain Binding Machines.
Rotary Jacquard Binding Machines.

FOR INFORMATION, ADDRESS

STAFFORD & HOLT,

LITTLE FALLS, · NEW YORK, U. S. A.

JAMES TAYLOR, 216 N. Front St. Philadelphia, Pa.

ALL KINDS OF NEW AND SECOND HAND **KNITTING MACHINERY**

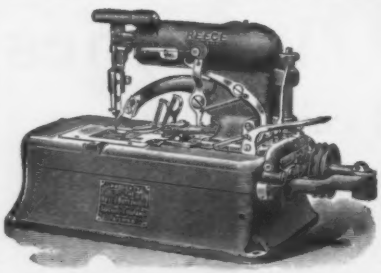
A RARE OPPORTUNITY TO BUY

10 Lamb & Grosser Sweater Machines.
3 Large Crawford Hollow Plate Presses.
1 Allen 40 Spindle Cop Winder.
54 Standard "B" Knitters for sizes.
24 Mayo "Acme" " " "
2 Complete Hosiery Plants.
1 Boomer & Boshert Cold Press.
1 Crane Style Collarette Machine 20", 16 to in.
1 Rotary Fire Pump. 3 Small Pumps.
2 Toque Machines.
4 Hosiery Dryers.
14 Cornely Hosiery Embroidery Machines.
500 Dozen Hosiery Shaping Boards.
1 Caligraph Typewriter.
1 Complete Plant for Mfg. Hosiery
1 ½ h. p. Electric Motor.
1 Singer Nat. Button-hole Machine.
500 Payne Winder Bobbins.
100 ¾ Aut. Knitters, various makes and sizes.
1 Payne 40 Spindle Skein Winder.
1 Abel 36 Spindle Cop Winder.
1 Union Special Overedge, Style 15.400.
4 Climax High Speed Motions for Ribbers.
1 Underwear Mangle.
Lot Electric Stop Motions for flat Machines.
1 Merrow No. 60.
1 Crawford 17 Plate Press.
1 Blickensderfer Typewriter
5 Band Folding and Cutting Machines.
1 Curtis & Marble Napper, 66".
30 Sweater Coat Machines various styles.
8 Jones Fleecers, 24x36".
1 Underwear Knitting Plant.
2 Singeing Machines.
1 Hosiery Printing Press.
4 Hosiery Lever Presses.
42 Union Spec. Sewing Machines, various styles.
50 Loopers and Seamers, all makes.
60 Ribbed Underwear Machines.
100 Hosiery Ribbers and Sleevers.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY

We are always in the market to buy good Second-Hand Knitting and Finishing Machinery.

The Reece Button-Hole Machine



For Cutting and Stitching Straight Double-Barred Buttonholes

This machine is designed for cutting and stitching straight double-barred buttonholes without eyelets, from ⅛ of an inch in length up to 1 inch, in knit goods, shirts, shirtbands, collars, cuffs, etc., also on knit goods of all kinds. It is superior to all other machines, as it is the *only single thread* buttonhole machine on the market doing away with the bobbin or under thread, thereby making a great saving in the use of thread, and *it will produce more than double the quantity of work of any other machine*, thus saving the employment of an extra operator and the space of an extra machine. The quality of the work produced is superior to any other buttonhole, from the fact that the stitch is elastic, which is an important factor in knit goods. This machine is automatic in all its movements, and is an easy machine to handle, and does not require the services of a skilled operator, no cutting or pulling of the thread required, and when the buttonhole comes from the machine, it is finished in every respect and does not require to be trimmed or cut. The length of hole required can be obtained by simply turning a screw.

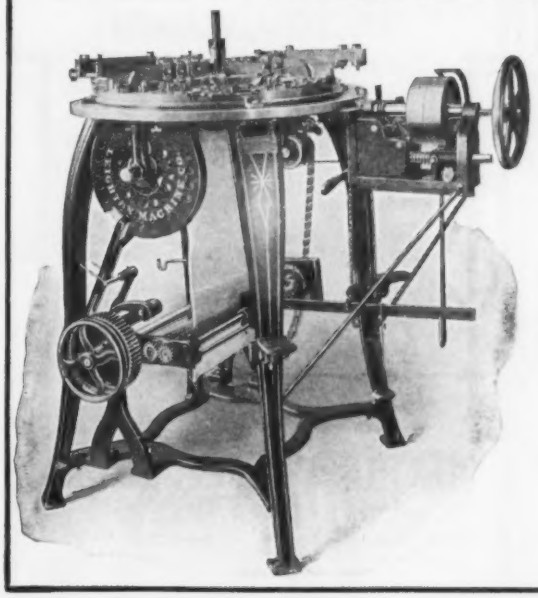
The machine is made of hardened steel drop forgings, thus reducing the breaking and wearing of parts to a minimum. *Samples of work and terms sent on application.*

THE REECE BUTTON-HOLE MACHINE CO.

Office and Factory - 500 to 514 Harrison Avenue, Boston, Mass

THE LEIGHTON KNITTER

HAS EARNED THE REPUTATION OF PRODUCING



Firm, Elastic Garments

USING LOW GRADE STOCK

THESE MACHINES ARE BEING USED FOR

High Grade Goods

MORE AS COMPETITION INCREASES

Real Efficiency

Means Excellent Stitches with ECONOMICAL OPERATION

For Particulars ask

LEIGHTON MACHINE CO.

Manchester, N. H.

John W. Hepworth & Company

N. W. Cor.
Lehigh Ave.
and
Mascher St.
Philadelphia, Pa.

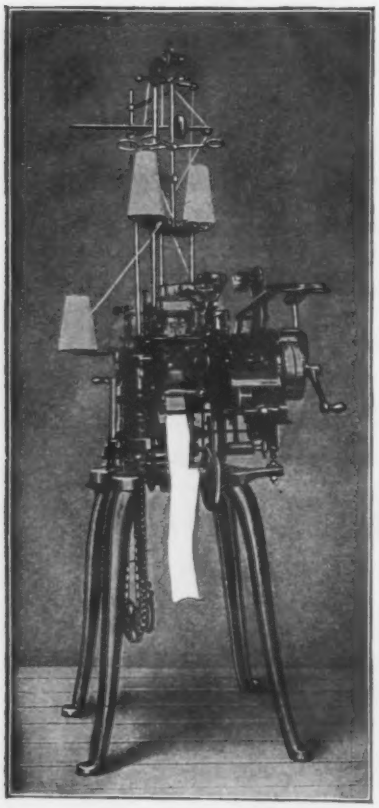
Makers of Two Thread Elastic Lock Stitch Loopers

ALSO ATTACHMENTS for changing our single stitch loopers into the two-thread loopers.

PAXTON & O'NEILL

Full Automatic

Yarn Changers and Platers



Easy Transfer

Accurate Measuring Device

Produce Finest Fabric Made On Any Latch Needle Machine

FOR LADIES or HALF HOSE

Makes Ladies' Hose with Garter Top.
No Ravel;
Silk, Plated, or Mercerized Leg.
High Splice, Double Sole, with Advanced Toe, Linen or Mercerized Heel and Toe.

PAXTON & O'NEILL

537-41 North Third Street, Philadelphia

HOW MUCH OF THIS

$10,000,000.00

DO YOU WANT?

About $10,000,000.00 worth of full fashioned stockings are made in America each year.

No matter what proportion of these millions you are now getting, you can get more of it if you will make full fashioned hosiery on our machines.

Because, the stockings you make will fit perfectly and bring you repeat orders.

The leading hosiery manufacturers are installing these machines.

If you are thinking of making full fashioned goods take up the question with us—as our success depends upon yours, we will prove to you that we can help you before you spend a cent.

TEXTILE MACHINE WORKS

READING, PA.

THE MAKERS OF AMERICAN FULL FASHIONED HOSIERY MACHINES

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

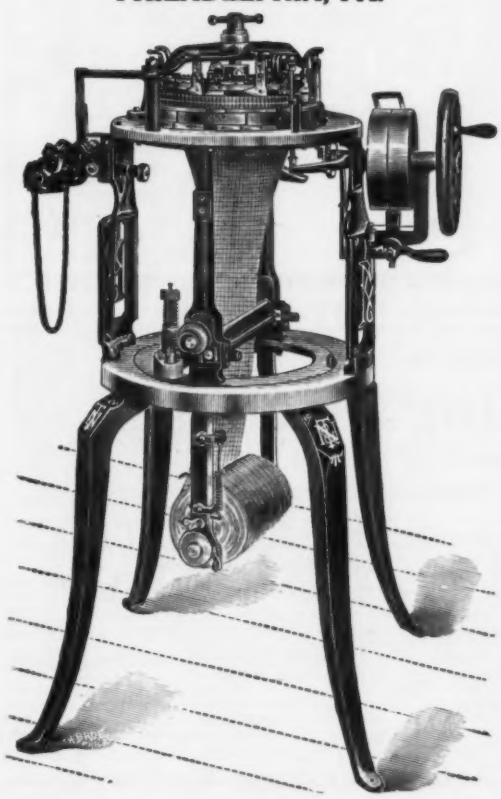
Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,

Cor. Elm and Reed Sts., Reading, Pa.

NYE & TREDICK CO.

718-720 Cherry Street
PHILADELPHIA, PA.



Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. Correct Construction, Excellence and Durability.

LATEST IMPROVEMENTS

Quality of Fabrics and Production
UNEXCELLED

NYE & TREDICK CO.

1914

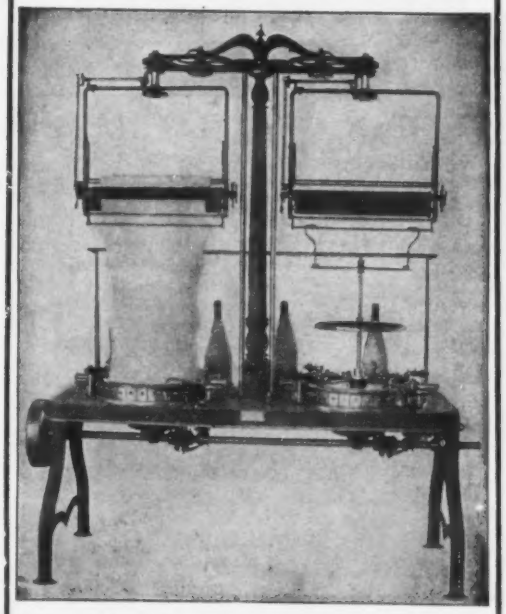
CRANE MFG. CO.

Established 1870 — LAKEPORT, N. H. — Incorporated 1890

Spring and Latch Needle Machines

for both Rib and Plain Work
Economically Producing

A GREAT VARIETY OF FABRICS



Spring Needle Underwear Machine with Automatic Takeup

This machine is made in sizes from 13" to 22" in diameter of any desired gauge, the number of feeds depending on the size of cylinders,

Also built in sizes from 2½" to 40" in diameter for the production of a great variety of fabrics.

Aside from the feeds for plain fabrics the stockinet, eider down and astrachan feeds are superior to any on the market.

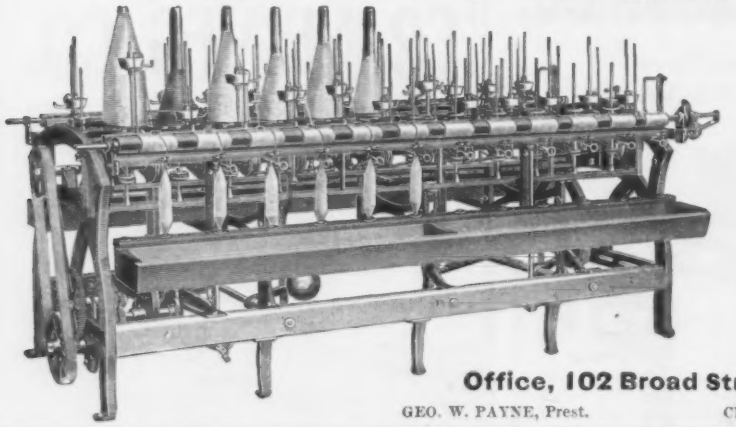
Many of these machines are in use in the leading mills.

SOME CRANE FEATURES.

Patent removable hardened Wing Burr Wheels.
Patent Thread Stop Motion can be fitted to 20" and 40" frames and are specially adapted for making fine Jersey Cloth and Stockinet.
Our flat machine is adapted for knitting collarettes.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin



Improved

Upright Spoolers

To Spool from Cop, Skein or Bobbin

Doubling Spoolers for doubling 2, 3 or more ends into one

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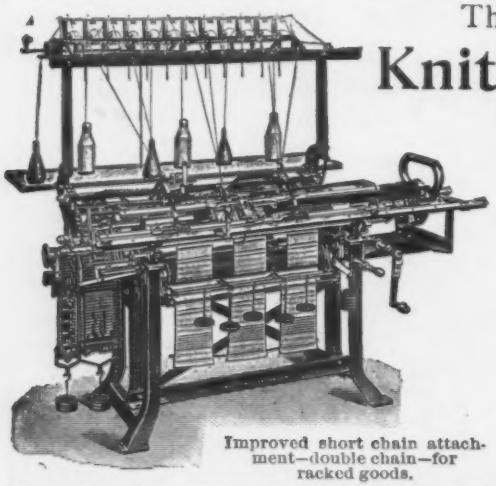

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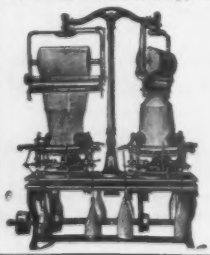
We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

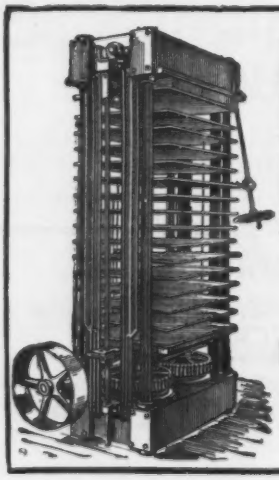
Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.



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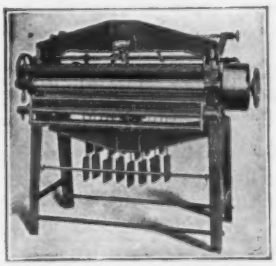

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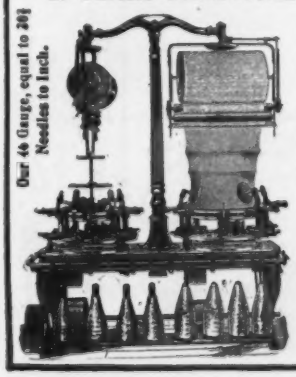

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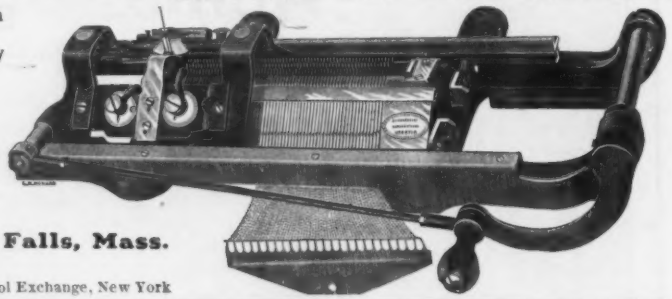

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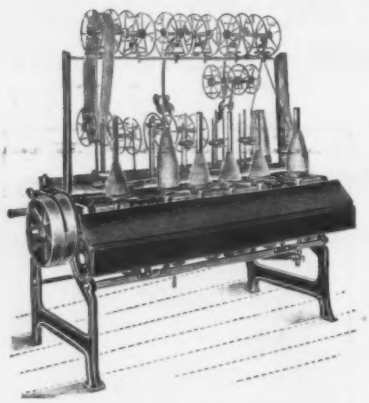

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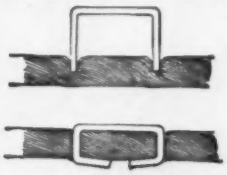

The coarse heavy wire and the blunt staples break the threads and leave unsightly holes after they are removed and require a knife to extract the stitch.

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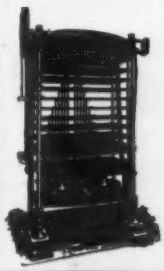

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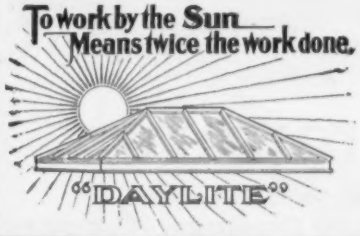

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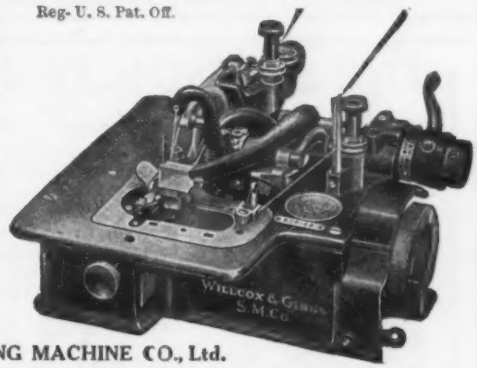

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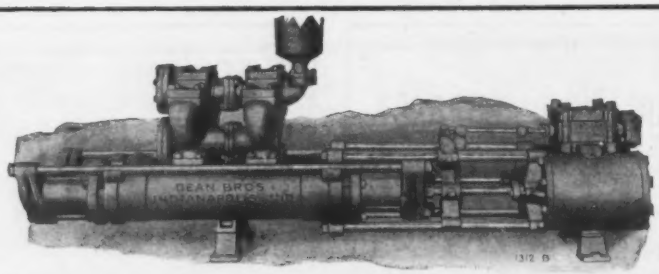

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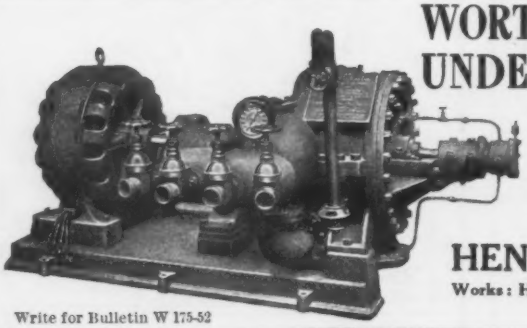

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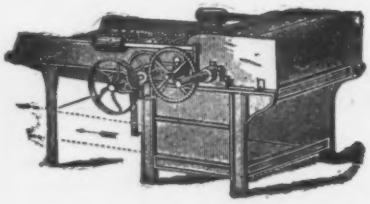

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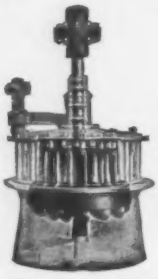

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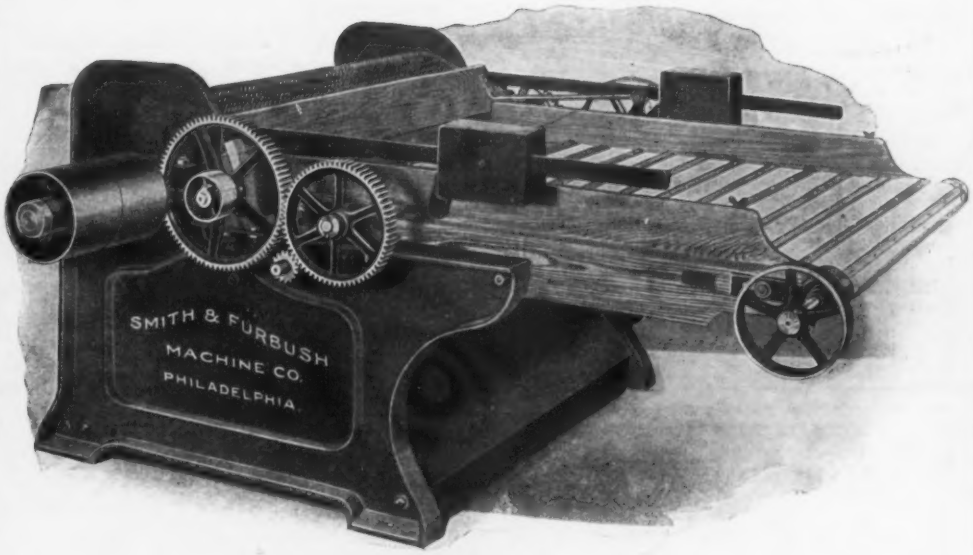

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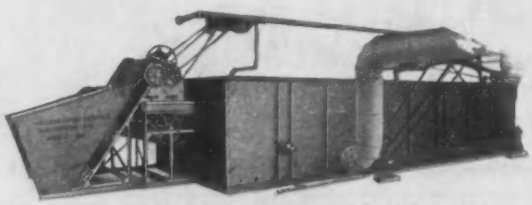

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Practically all the large manufacturers of textile machinery will operate their exhibits by G-E motors. Over ninety motors will be used in this exclusive manner.

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The evidence of the intelligent and successful study of textile machinery requirements by the General Electric Company can be demonstrated by a careful inspection of the special textile motor applications to be found in the exhibits of the following textile manufacturers:—

Picker Motors: Potter & Johnston Machine Co.

Individual Motors for Cards: Whitin Machine Works.

Special Applications to Drawing Frames: Mason Machine Works; Woonsocket Machine and Press Co.

Variable Speed Motor for Roving Machinery: Whitin Machine Works.

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The General Electric Company's own exhibit will contain four frame drive motors, picker motors, spinning frame motors, form L motors and loom motors in operation with instruments to show their starting characteristics. Cloth gears and pinions will be shown in operation. All sizes and styles of MAZDA lamps and Holophane reflectors (both glass and steel) suitable for textile mill lighting can be seen.

Special controlling devices for textile mill motors will be found in the G-E exhibit as well as in those of twenty-five or more leading textile machinery manufacturers.

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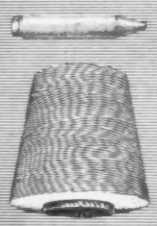
Seattle, Wash.
Spokane, Wash.
Springfield, Mass.
Syracuse, N. Y.
Toledo, Ohio.
Washington, D. C.
Youngstown, O.

For Texas, Oklahoma and Arizona business refer to Southwest General Electric Co., (formerly Hobson Electric Co.)—Dallas, El Paso, Houston and Oklahoma City.

For Canadian business refer to Canadian General Electric Company, Ltd., Toronto, Ont.

4942

UNIVERSAL WINDING MACHINES



PARTS ALL INTERCHANGEABLE

Dexter

TRADE MARK REG. U.S. PAT. OFF.

UNIVERSAL NUTAPER CONES

Are the best supply for a knitting machine for the following reasons:

1. The yarn retains its original elasticity and twist because:
   (a) By the "Universal System" it is wound with a light tension and not subjected to the rubbing pressure of a friction drum.
   (b) The guide delivers the yarn at the cone itself and does not draw it on with a rolling motion from a greater distance than the length of the fibre.
2. Nutaper cones can be ordered with any desired degree of "openness;" the correct "spacing" once being determined remains absolutely uniform for any number of cones and for all the layers of any one cone.
3. All the yarn will run off "clean" because—
   (a) The taper (or pitch) is correct, having been determined by exhaustive tests on a great variety of knitting machines.
   (b) The paper cone tube has the same acute taper (or pitch) as the outer surface of a full cone and there is no "drawing in" or "bunching" of the first few coils.
   (c) No. 50 "Universal" machines do not make "Cobwebs" or "overruns."

UNIVERSAL WINDING COMPANY

PATENTEES AND SOLE MANUFACTURERS

BOSTON